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DECEMBER - 1928

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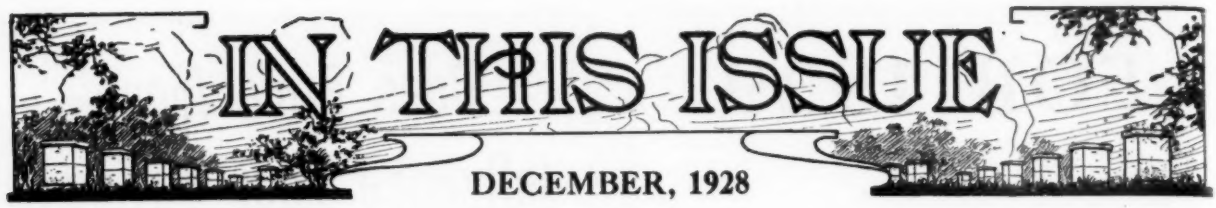

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December
Month of Christmas

As Charlie Carlson of Bronson would say, "If why so?" Why do we need to make such a chore of our Christmas shopping? Why all this racking of brains to think of some presentable gift?

Every year about this time we all have the same thing on our minds. As the month advances we grow almost frantic. When Christmas is finally over we heave a sigh of relief and say, "Well, thank goodness, that's over for another year."

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And every year it is the same.

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FOR 1929
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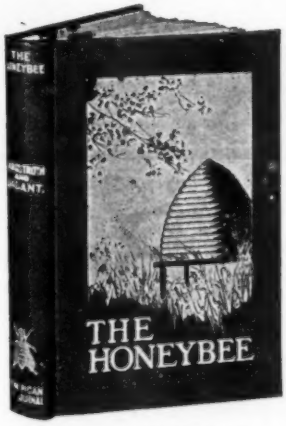

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AMERICAN BEE JOURNAL

Vol. LXVIII—No. 12 Hamilton, Illinois, December, 1928 Monthly, $1.00 a Year

Seeing Manitoba from the Outside

By G. H. Cale

NORTHWARD over Dakota's fields, toward an ever-rising skyline, white snow wrapping its warm mantle over earth's rich promise, and a never-ending wind above. Somewhere ahead stretches Canada's boundary, the longest undefended frontier in all history, a tribute to the friendship of two great nations.

Passing over the boundary is easy for either a "United States" or Canadian. Remember, Canadians are Americans too. The customs officer makes that plain. They are just as proud of being Canadians and Americans as we are of being Americans and residents of the United States.

Prof. A. V. Mitchener of the Manitoba Agricultural College

Customs over, the train eases into Winnipeg, Canada's third city, gateway to the great Canadian West. Quite comfortable to an "American." Why shouldn't it be? It is a wholly typical American city. Just minor differences like King George, British colors, instead of Stars and Stripes, such words as "royal" and "limited," little differences of history and opinion.

Winnipeg is the heart of Canada's first great prairie province, carved out of Hudson's Bay territory, along with Alberta and Saskatchewan. For two hundred years this vast stretch of rich country, including the present Yukon and Northwest Territories, was under the rule of the Hudson's Bay Company, original fur traders and exploiters, chartered under Charles II. It was handed over to the Dominion in 1870.

In 1912 the area of Manitoba was extended north to the sixtieth parallel and east to the shores of Hudson's Bay. It is now more than twice its former size, with a total area greater than that of Holland, Belgium, and Germany combined—Canada's "Keystone Province."

Winnipeg is the dominant community among Manitoba's four cities, thirty towns and twenty villages. Supply base for gold and copper mining areas, America's greatest primary grain center, financial, commercial, and manufacturing hub of the great West, what a future lies ahead of her!

One used to the mixed races in America's melting pot will feel at home in Winnipeg. The British are predominant, but there are generous groups of French, German, Belgian, Danish, Dutch, Islandic, Norwegian, and Swedish. They mix well. The central European races are coming in also, Poles, Russians, Ruthenians. Twenty-six languages are spoken in Winnipeg, yet every body seems at home. There is little class distinction, although the population is made up of forty-three different nationalities.

L. T. Floyd, Provincial Apiarist

Half the population of Manitoba is in Winnipeg. The rest centers in the other communities, and out over the fertile farms, less than three people to the square mile. Manitoba needs people and her great promise of livelihood draws them like a magnet. The new lands to the north have added materially to the fertile fields of the south; fisheries, water power, minerals, a coast line with the two fine harbors of Port Nelson and Churchill on Hudson's Bay. Early rail connection there will shorten the route for grain shipments from the Canadian West and the northwestern states to Europe by some seven hundred miles.

On Victor street, one Sunday morning, thermometer 25 below zero, wind blowing, I asked a friend from Regina if it ever got colder in Saskatchewan. "Oh, yes; often 35 to 40 below. But, then, one doesn't notice much difference, except that the nose freezes quicker." I was satisfied with Winnipeg. For years I lived in New England, and 20 below there, with frequent high humidity, is worse.

Canada's climate is little understood. On the prairies and in parts of the other provinces winters are long, but the days are dry and bright. The cold is steady and invigorating. Winter usually extends over a five months' period from mid-November to mid-April, the ground covered with snow, and with soft snaps in most winters. Winter sports are a delight. There

Group at the Beekeepers' Short Course at the Manitoba Agricultural College, at Winnipeg, during the winter of 1927-1928. Held about February 1, this course, lasting a week or ten days, attracts new recruits and even older beekeepers from all over the province.

is no rain or mist. Plenty of snow and ice. Warm clothes are all that is needed.

Spring and autumn are extended. Summers warm, with long, bright, sunny days. The chief rainfall occurs in June and July, with an average annual precipitation of about 20 inches.

The southern half of the province, a part of the great plains region, is made up of three levels, or steppes. The lower one to the south is the heart of agricultural Manitoba. Covered in past ages by old Lake Agassiz, it is a rich glacial soil, sweet with lime, a perfectly ideal clover region.

Diversified farming is rapidly gaining ground. Livestock raising is in great favor, especially since the introduction of sweet clover. Livestock and dairying cannot be carried on without this legume. J. H. Evans, Deputy Minister of Agriculture, addressing a group of beekeepers at Winnipeg during the annual convention in 1928, said: "What Manitoba needs is more dairy cows." Sweet clover must supplement native pasture to make such development possible.

Because of the rapid spread of sweet clover and the interest in diversified farming, beekeeping is finding great favor in this north country. It is surprising what a proportion of the settlers on the farms in the province know something about bees, especially those from central Europe. Like magic, honey production has risen from mere beginnings to a 1927 crop of 7,385,575 pounds, a little under a third of the total honey crop of the Dominion and an increase for the province, since 1920, of 6,468 per cent. And still beekeeping is reported as established in only a part of the province.

Average per colony production in Manitoba for the past five years, according to L. T. Floyd, Provincial Apiarist, was 127 pounds to the colony. Individual records are less easy to believe. W. B. Wright, at Souris, in southern Manitoba, had a hive on scales which, on July 31, 1925, under check by the Department of Agriculture, stored . 25 pounds. From July 13 the daily gain was from 14 to 16 pounds. The total crop from the colony was 496½ pounds.

They are much like stories from hunters and fishers, but more authoritatively established. Take another: W. L. Pink, of Sturgeon Creek, started one season with 100 wintered-over colonies, bought 100 more, increased to 329, extracted and sold twelve tons of honey and then sold the entire outfit for $7,000 cash. He started in all over again the following year. Such results make beekeepers more rapidly than anything else can possibly do.

In comparing crops from over-wintered colonies and packages, Prof. A. V. Mitchener, at Manitoba Agricultural College, found from figures gathered over the province that the over-wintered 1927 colonies produced only about 23 pounds more than packages. Averages from May 1 packages ran as high as 250 pounds. Later packages around 150 pounds.

There are only a few dependable cellars. Winters are long and cold. The death rate of bees is high. So package bees become an insurance on the honey crop for these northern

One of the buildings at the College of Agriculture, just outside of Winnipeg, near Fort Gary. The entire group of some twenty buildings is in one architectural design, very harmonious and matching the new country.

Parliament buildings at Winnipeg, a beautiful group. In one of these buildings is the office of the Provincial Apiarist

beekeepers. The honeyflow comes late and package bees can build up well before it starts. The bees arrive from April 15 to May 10.

Surplus honey comes from one long flow beginning, on the average, the last of June, continuing through July and August, and ending early in September. Prof. A. V. Mitchener describes it as "a continuous flow, with no period when the colonies are not more than holding their own in weight." From records of about fifteen scale colonies scattered over the province, for a period of about four years, Professor Mitchener has found that the peak of the flow is reached sometimes in July and sometimes in August, depending on the season.

The difference between day and night temperatures is an important influence on the honeyflow. Writing of this, Mitchener says: "Over a period of thirty years the spread between the mean daily maximum temperature and the mean daily minimum temperature for the month of June for Winnipeg is 24.7 degrees, and for July 23.8 degrees. About three degrees more than for Toronto and about three to six greater than for Vancouver for the same period.

"Another factor favoring the honeyflow is the long, bright working days. Our bees as yet have not insisted on union hours. They work the whole sunny day from early morning until sundown. During July and August there are 939 possible hours of sunshine. If the sun were never covered with clouds this would mean 15.14 hours of sunshine daily. Of course, this never happens. Actually, however, during the past eight years, the average daily sunshine for these two months has been 9.6 hours.

"A third factor worthy of note is that rainfall is timely and abundant for the production of a profusion of flowers. For a period of forty-five years our average yearly rainfall has been 20.29 inches, not a heavy rainfall, but coming at a time when it does the most good. During this period the average rainfall for June was 3.26 inches, and for August 2.05 inches. Our honey plants are well watered when they are in bloom."

This north country has its own peculiar beekeeping problems. In the spring, hot days alternate with chilling winds. Early fruit bloom, willow and dandelion stimulate brood rearing, but a freeze may come along and kill the brood. Early dystentery is often bad. Fall and spring protection is apparently as necessary as winter protection and the quality of food is of first importance.

Spring feeding is often more harmful than it is beneficial. The bees become too active and the death rate is high. It is much better to feed in the fall. Early handling also leads to the loss of queens. Bees are better left alone. Early falls often bring an end to brood rearing too soon and spring colonies are bound to be weak as a result. It is often better, in such cases, especially on the wet prairies, where cellar conditions are poor, to kill the bees in September and fill the equipment with packages the following year.

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5-lb. tins 62c

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Soda Biscuits — Patterson's Butter Cream Large packets 26c

Milo Wheat — Breakfast Cereal, a whole grain food. Per packet 20c

A Winnipeg ad. "Low priced" Ontario "sweet clover." Clever use of preference and price for outside honey.

Swarming is a big problem under these intense conditions. Some of the best beekeepers often report to the Provincial Apiarist's office that the "bees have gone crazy and are swarming all over the place." It might help to divide well wintered colonies, when young laying queens are available for the divisions, building both parts up to the flow. Later, colonies could be united for winter.

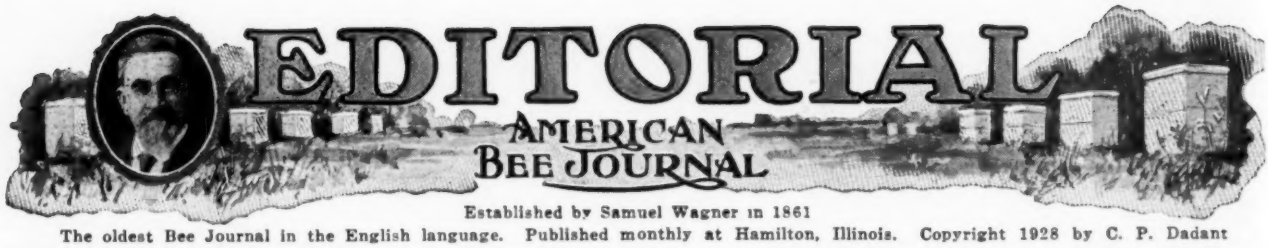
Cellar wintering is the approved practice, but experiments in bees packed outdoors have been successful where the packing is plentiful and carefully placed. Portable windbreaks can be used for shelter from the winds.

Because of the scarcity of fruits, the prairie provinces consume large amounts of honey. The long haul places the eastern producer at a disadvantage and makes the local market prefer local honey. Manitoba sweet clover honey is of a body and quality hard to beat and it is consistently advertised in the city markets. Cut prices on eastern honey are a constant source of aggravation to the local producers. Still the preference among consumers is for their own honey.

In the education of its beekeepers, Manitoba stands high. The Provincial Apiarist, L. T. Floyd, is employed by the Government to carry on extension work and inspection. He is a hail fellow well met with all beekeepers and looks after their interests in so many ways that an outsider could scarcely detail all that he does.

At the Manitoba Agricultural College, just outside of Winnipeg, Prof. A. V. Mitchener, through experimental work, teaching, and cooperation with Floyd, is also leading Manitoba beekeeping. His department is compiling figures on yields and on the honeyflow conditions in different parts of the province to help beekeepers in selecting locations.

So beekeeping forges ahead in this great north country. Manitoba's honey producers are sending their product out to meet honey in the older regions and beating it both in the market and in competition. Her honey not only graces her own tables, but promises to go onto the world market and command a high place. Let's wish her great travelling.



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Entered as second-class matter at the Postoffice at Hamilton, Illinois. C. P. Dadant, Editor; Frank C. Pellett and G. H. Cale, Associate Editors; Maurice G. Dadant, Business Manager.

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Lets Make Sure of What We Know About Honey

From the interest shown by beekeepers and those engaged in the marketing of honey, and the assurance of cooperation given by the different departments of the Government in a position to seriously undertake the study of the food value of honey, it behooves all of us to get behind any effort to establish such studies.

It is hoped that a meeting can be arranged soon among those interested in the food value of honey to lay definite plans for research work, under the leadership of Dr. A. F. Woods, of the U. S. Department of Agriculture. It will be of value not only to our own bee culture laboratory in the Department, but also to the Bureau of Chemistry, Bureau of Agricultural Economics, the Dairy Division, and other branches of the Department.

To support this research will probably require at least $20,000.00. Beekeepers' associations and individual beekeepers, in a position to influence friends in the Department of Agriculture or Congress, should at least confer with them about this possibility. Pave the way. It will be a good investment.

The following have been suggested as highly desirable studies to be made of honey:

1. The perfection of methods for the utilization of honey in candy manufacture without heating to such a high temperature as is at present considered necessary.
2. Possible uses of honey for flavoring and sweetening ice cream.
3. Possible uses of honey for flavoring and sweetening beverages.
4. Possible uses of honey in making preserves, such as jams, preserved whole fruits, etc.
5. The preparation of a suitable honey-spread, or cream, for use upon bread, biscuits, honey sandwiches, etc.
6. An extension of the uses of honey in baking.
7. The possible use of honey in the arts and industries, such as the making of tooth pastes, shaving cream, and face lotions.
8. As a substitute for glycerine in the manufacture of gaskets and anti-freeze solution.

Straw Mats

We have an occasional enquiry concerning the "straw-mat" which we use over the brood chamber of our colonies in our own apiaries. These straw-mats are described in our Langstroth-Dadant book, the revised "Honeybee." We use them in every colony. But we do not find them popular. The only beekeeper who used them, to our knowledge, besides ourselves, in this country, was Charles F. Muth, father of Fred Muth and grandfather of Clifford Muth. He, like ourselves, was foreign born. The beekeepers of America have never adopted them, but have, instead, used cushions made of cloth, rugs, old carpets, etc.

The straw-mat is a decidedly European implement. They are used largely by gardeners, to protect their tender plants against late spring frosts, and likewise to protect fruit trees grown in espaliers, against frosts. For this purpose they are usually made in large sizes, often four feet wide and eight or ten feet long. They are a decided protection in the cases mentioned. Peach trees, especially, growing in the cool climate of the vicinity of Paris, would give very rare crops without the use of the straw-mats. But at Montreuil, near Paris, the peach crop is an assured success with the help of the straw-mat. It is true that the wall used for the protection of the trees on the north side would be so hot in our latitude as to make them dangerous to the trees in summer. It is from these examples of mat usefulness that an old gardener who had come from Paris, and kept bees here, gathered the idea of mats for beehives, both inside and outside. This idea was followed by us and we still continue the custom.

Cooperation

The Iowa Beekeepers' Association invited the Kellogg Company of Battle Creek, Michigan, to join with them in a cooperative demonstration at the Mid-West Horticultural Exposition. The beekeepers, of course, were interested in calling public attention to the merits of honey as an ingredient in the various dishes on the housewife's table.

Mrs. Mildred Ghrist Day, one of the experts from the Kellogg Home Economics Department, was placed in charge. During the exposition thousands of visitors passed through the big auditorium where the show was held. It is impossible to tell how many of these visitors became acquainted with the merits of honey and of the Kellogg products as a result of this cooperative arrangement. Mrs. Day arranged an interesting display with white enameled electric range, electric refrigerator and other up-to-date kitchen equipment. Each afternoon she demonstrated the preparation of some special cookery in which honey can be used as a desirable ingredient. Samples of the cakes, muffins, ets., were given out to large numbers of the visitors. During the greater part of the day she remained at her post answering questions and giving out leaflets with recipes for the use of honey.

The result of such a demonstration cannot be measured, but it was readily apparent that many housewives went home with the thought of using honey in future.

A special resolution was adopted at the convention asking Mrs. Day to convey to Mr. Kellogg in person the appreciation of the beekeepers for the cooperation which he has given.

Slogans

There is no doubt that a good slogan has its place in fixing in mind the qualities of a certain product. However, the idea of pushing every kind of product by means of a slogan is badly overdone. Just now it seems to be a popular fad on the part of beekeepers to urge people to "EAT MORE HONEY."

We regard this as bad psychology. People will eat more honey because of its flavor or because they are convinced it is a better food than the sugars which it replaces, but not because they read a livid sign, "Eat More Honey."

The clothiers do not attempt to increase their business by means of advertisements saying "WEAR MORE CLOTHES," nor do the doctors urge us to "TAKE MORE MEDICINE." Even the dealers in oil, most successful of merchants, refrain from saying "BUY MORE GASOLINE."

The "Eat More" campaigns are entirely misplaced and can only result in failure. If a slogan is needed it should carry some pleasing suggestion without a direct reference to the need of eating the product. "Honey for Health" is much more likely to increase the sales of our product.

Probably the most successful sales campaign based on a slogan is the "SAY IT WITH FLOWERS," carried on by the florists. In like manner we might say, "SWEETEN IT WITH HONEY." F. C. P.

Controlled Mating of Queenbees

In a letter to Huber, the blind naturalist, dated August 18, 1789, Bonnet wrote as follows:

"It would be suitable to try to fecundate a virgin queen artificially, by introducing, within the vagina, at the end of a hair pencil, a little of the prolific liquid of the male, taking every precaution to avoid error. You know how much artificial fecundations have been worth to us already in more than one way."

Huber had only recently discovered that natural mating took place in the open air. From that time until recently controlled mating has been the dream of those who would improve the race of honeybees. It remained for Lloyd Watson to accomplish the seemingly impossible result. Now that controlled mating is possible, progress in further improvement of bees may be expected.

Honey Attracts Attention in Printing Magazine

The mention of honey and its uses is found nowadays in the most unexpected place. The day has passed when you should be surprised at the mention of honey in certain publications.

Printers' Ink (weekly) has a department called "The Little Schoolmaster's Classroom." In the October 25 issue we find this:

"New advertisers are created in interesting ways. Here is a story which the Schoolmaster has just heard:

"Several breakfast food and cereal advertisers have mentioned in recent copy that the use of honey would improve the tastefulness of their products. As a result of this gratuitous advertising, a honey packer has found his sales increasing at a surprising rate. At first he did not know how to account for the jump in sales, but when he saw the breakfast food advertising he came to the conclusion that this was the explanation. Now he is considering an advertising campaign of his own, and before long he will probably be found using paid space in the same publications employed by the breakfast food advertisers."

This merely goes to show that honey is coming into its own and before long the consuming public will be using honey as a staple side by side with sugar and syrup. L. M. N.

Typographical Error

We are always sorry to have to make a correction of our own printed pages, but in some cases it is quite important. In our November number editorials, page 544, first column, the twenty-eighth line from the bottom should begin by the word "not," so that the sentence will read, "The temperature should **not** be above 48 degrees . . . " This is, to our mind, very important, as our bees have always misbehaved in the cellar above 48 degrees. It is not too late to look after this.

On page 550 of the same number, first column, the eighth line at the bottom of Miss Annie D. Betts' article should read: "(roughly $2,300,000)," since the Swiss franc is still worth 20 cents of our money.

Pear and Apple Blight

The October 19 number of "Science," on pages 386-388, contains an article by Paul W. Miller, of the Department of Plant Pathology, of the University of Wisconsin, who, after giving his reasons for opinion and quoting authorities, affirms that "rain is a very important agent in the dissemination of the inoculum for fire blight," and that "blossom clusters and young twigs which were carefully protected from visitations by insects were blighted approximately as much as similar unprotected parts." This appears to indicate that bees are not so guilty as was advanced by some orchardists in the involuntary dissemination of the hateful apple and pear blight.

Fermenting Honey

Reader, if you have had similar weather, during the past summer, to the weather we experienced, you will find honey fermenting easily, unless it has been very specially evaporated. Keep an eye on your honey and, if it starts making bubbles, heat it to 140 degrees, and keep it hot long enough to enable it to evaporate some of the moisture. Comb honey often bursts its cappings when sealed by the bees insufficiently ripe.

Granulated Honey

The Argentine "Revista de Apicultura" for July contains several mentions of granulated honey. On page 34 it says: "Argentine beekeepers, teach to your clients that pure honey, in all countries of the world, crystallizes and that it is a guarantee of purity." Without doubt, sooner or later, the consuming public will learn this fact, instead of imagining that granulated honey is impure, as so many do at present.

Wisconsin State Beekeepers' Membership Book

The Wisconsin State Beekeepers have published a very pretty little booklet of constitution, by-laws, membership, etc., of thirty-two pages, which ought to be copied as to its makeup, by all the state associations in the country. It is small enough to go into a member's pocket. Write to H. F. Wilson, Secretary, Madison, Wisconsin.

Conventions and Honey Waffles

By Betty Bee

BETTY BEE

NOW that the season for state beekeepers' meetings is approaching, our men folk are wondering if they can possibly afford to attend. Let us as censors of the family budget look into the matter. Can our beekeepers really afford to miss them?

Whether our Johns have one or one thousand colonies, the more each knows of the subject of bees and beekeeping and puts that knowledge to practical use the greater will be the reward. Since the advent of bee disease the man who keeps bees merely because his father did or a stray swarm was wished on him, or to furnish an intermittant crop of honey for the family biscuit without thought of giving his bees careful and scientific attention, is a back number and unworthy of the reward he seeks.

In this day, when every industry is on tiptoe to achieve the greatest success and remuneration, every beekeeper worthy of the name should strive to bring his colony or colonies, as the case may be, to the very **highest point of efficiency.** Better one colony kept in A1 condition than a dozen neglected in any way. On every hand we find means to help us do this. Our own experience teaches us a lot; that of others, if reliable and not mere superstitions, is invaluable. The bee journals and various excellent bulletins from our State and Government stations, the many worth-while books written by men who have investigated and know the different phases of the subject, all of these help to make us better beekeepers if we will but study them thoughtfully, weigh their teachings carefully, and constantly try to put into practice the best that is offered us. Last, but by no means least, our various county and state associations, composed of earnest, up-to-date bee men, joined together to study the various problems and conditions incidental to local and general beekeeping practices, are and should be one of the most helpful and important means of progress.

This is a day of organization; our plumbers, grocers, dairymen, insurance salesmen, bakers, electricians, all are organized. Our daily papers are filled with reports of the various meetings. We live in a convention age. Our horticulturists, editors, lumber men and paper hangers hold conventions to discuss, no doubt, matters relative to their respective occupations. Our physicians and dentists have a conclave all their own. Our furniture dealers meet each year to consider probably the latest thing in folding beds or gate-leg tables. Only last week our rural postman was off two days to some state postal meeting, and three weeks ago our schools were closed to give our teachers a chance to sit for three days at the feet of the eloquent—or otherwise. Printers, undertakers, dancing teachers, all take a fling at this convention business. Even the barbers, I am told, hold a state session, no doubt to discuss the latest in neck shaves, cures for baldness, and classier stories. Indeed, do not all of us periodically open our homes and larders and sacrifice our best spring capons because of some Y. M. C. A. or church conference?

Now, my dear beekeepers-in-law, our Johns belong to one of the greatest fraternities in this country (although as yet they have not learned their power). It has many, many members, some honorary, some privileged, many active, others inactive, but all joined by a common interest—the honeybee and the production and disposal of honey. Its honorary members, those great hearts that have given us so much in the past, have now gone "beyond"—Langstroth, Dr. Miller, A. I. Root, Charles Dadant, etc. The privileged are those splendid, intellectual fellows that head our entomology departments and vocational schools, address our short courses and write and expound clever theories and cleverer practices—privileged because we are perfectly willing to give them the privilege of talking and writing and arguing while we accept them and hope they know all we think they know.

Then there are the active members—a great host, some with but few colonies, kept for recreation after office hours, but kept with understanding, thoroughness and true knowledge of bee nature; others who, with **our help,** run many more colonies in earnest, men who keep bees for the bread and butter, necessities and luxuries of their families. This class study as well as work, and stand shoulder to shoulder to help put over whatever is best for the organization and the industry.

Then there are the inactive members, those interested in bees, who work with them intelligently perhaps, but who are not vitally connected with a beekeeping organization in any way, who cannot be counted upon when any great constructive work is to be done. These inactive members are not in line for action when a change in the law may curtail the power of our state bee inspectors or limit the appropriations for bee work, or ready to combat unfavorable legislation, for he is not affiliated in any active way with the organization where the most constructive good should be and is done. These inactive members are apt to be those who year after year feel they cannot afford to join or attend county or state meetings; yet too often they want the other fellow to get the legislation through and help boost the price of honey or hustle up the state inspectors. This class is in the minority, to be sure, but there are far too many of them even now. Let us as beekeepers-in-law see to it that our Johns are not among this class.

Therefore, my dears, even though this may be a "lean year," let us try to attend our state conventions. You will be so glad that you did. Your last season's hat and John's old overcoat will do splendidly, for all they talk about is bees, and no one thinks about clothes at a beekeepers' convention. If you can't go yourself, then send your John off with your blessing and determine that next season you are going with him. I assure you it will amply repay you both in happiness, enthusiasm, and knowledge acquired.

John and I attended our state meeting last winter and we had a most wonderful time. I shall never forget it, and the inspiration carried us over all the rocky places this summer. As I told John afterward, if ever I found myself wishing I had not chosen a beekeeper instead of a wealthier man, my senses would return to me after attending a state beekeepers' convention. The joy of this particular meeting will always, however, stand out in my mind because of our homecoming.

Of course, there were the children all lined up to greet us, and back of them, laughing at our intense surprise, that most delightful of all

people, John's old college chum, the parson who married us, and his newly acquired wife. They had stopped over a train to see us, found the children expecting us, and waited our return. We were so delighted and happy. Married life, however, teaches a woman to do rapid calculating even though apparently she is gayly entering into the liveliest of conversation. Given a period of "motherless, housekeeperless days," even with the best and most independent of youngsters, what sort of "company dinner" could I manage on short order three miles from a grocery, even in these days of gasoline? My "provision room" is usually well stocked, but I was not sure just what disposal my children might have made of its contents in our absence. Then, too—a recent bride and a minister's wife!

But the Reverend himself solved the problem: "Betty, do you still make those wonderful waffles you used to make for John and me? I want you to tell my wife just how to make them?" And John spoke up: "She sure does. Let's have them for supper." To be sure—a waffle supper. What better? "And let us all help like we used to do," said the Reverend; and while the children set the table, Madam Reverend in one of my best smocks fixed the salad. I mixed the batter and cooked the peas, and John and the Reverend were directed to preside over the waffle irons, and it seemed to me the good gentleman was quite as gracious and elegant there as in his pulpit.

Here is our menu: Creamed peas, pineapple salad, hot waffles with honey and country butter; plenty of rich country milk, a bit of cheese, and for dessert ripe pears and apples, cold from the provision room.

Honey Waffles

1 cup white flour
¾ cup whole wheat flour
½ teaspoon salt
¼ cup liquid honey
3 teaspoons baking powder
1¼ cup sweet milk
2 egg yolks
2 egg whites
1 tablespoon melted butter

Mix and sift white flour, salt and baking powder, then add whole wheat flour and the milk gradually, then the yolks of the eggs well beaten, the butter, then the honey, and last the stiffly beaten egg whites. Cook on well greased hot waffle iron. This makes four medium sized waffles. Some people consider waffles too hearty to digest, and they are if made in the ordinary way with white flour, sweetened with sugar and drenched with syrup; but made as we make them, with whole wheat flour, honey for sweetening, and served with honey, they are delicately delicious, nourishing and entirely wholesome — provided, of course, their very elegance is not an inducement to eat too many. Usually we serve the butter and honey separate, but sometimes we heat the honey slightly and beat in the butter, using this as a "dip" over them.

Creamed Peas

This is a simple and convenient dish prepared with canned peas. Make a cream sauce by melting three tablespoons of butter in a skillet and stirring into it one-third cup of flour, one-half teaspoon salt and one-eighth teaspoon pepper. Add one cup milk gradually and stir to avoid lumps. Cook fifteen minutes in double boiler if possible, since it improves the flavor. Then to this sauce add one

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Three High Spots in the Illinois Bee Tour

The three pictures were kodaked by Lawrence Peterson, Kewanee, on the recent bee tour in Illinois, about which we commented editorially in the last number. The cars with the signs at the back were gathered, at the start of the tour, at Bloomington. It should not have been hard for outsiders to tell just what was going on when the caravan breezed by so decorated.

Everyone reporting had a good word for the food served at Frank Zadel's. There were quite a few ready to eat it, judging from the looks in the center picture. Crowds like this came and went during the several days of the tour, some staying all through, some just for the day. Altogether a total of several hundred took part.

A trip of this sort is unusually interesting because of the opportunity afforded to see the different apiaries, the honey houses, the equipment, and to learn the methods of other beekeepers. With the present universal ownership of automobiles and the rapid increase in improved roads, it is often easy to organize a series of out-of-door meetings in this way and attract a larger crowd by far than any other kind of meeting.

Times change rapidly. Beekeepers are no longer much attracted to the old convention type of meeting. They want action, contact, practical demonstration. Even the state men are finding it necessary to revise their methods of approach in educational work. A winter convention used to get out one or two hundred people. Now they are well attended with two or three score.

AMERICAN HONEY INSTITUTE
FOUNDED 1928
BY
BEE INDUSTRIES ASSOCIATION OF AMERICA
CHAMBER OF COMMERCE BUILDING
INDIANAPOLIS

DR. H. E. BARNARD, PRESIDENT

More Beautiful Highways

An amendment to the Federal Highway Act providing for the maintenance of shade trees along the Federal highway system will do much toward making our highways more beautiful. This forward step should be followed by another amendment designed to regulate the character of the roadside refreshment stands. The hungry and tired traveler should be able to procure good food and comfort along our national highways. A National Stand Owners' Association has recently been organized for the service of stand owners, and it publishes a journal which it calls Roadside Refreshment Topics. Since the sale of honey at roadside stands has reached considerable proportions, and since honey fits ideally into the menus which feature honey and waffles, honey and hot biscuits, and the other simple and satisfying food combinations, beekeepers everywhere will welcome the development of these plans for beautifying our highways and developing a better system for the service of the traveling public.

Convention Days

Modern industry is not individualistic; rather it is built up of units which cooperate with each other. That requires organization, and so every industry has its association which holds annual meetings where all problems relating to raw materials, manufacture, sales, distribution, and business ethics are discussed. The beekeepers have long been well organized, and through more than four hundred associations scattered throughout the country they stimulate more intelligent beekeeping and a greater interest in the larger use of honey. The convention season for beekeepers is not confined to the summer and fall months, and the invitations which are coming in to American Honey Institute to attend meetings during the winter are evidence that beekeepers' organizations are looking to the Institute for help in promoting their industry.

Whenever it is possible, Dr. H. E. Barnard, President of the Institute, will attend these meetings. He has accepted an invitation to deliver two addresses—on the Institute and on Improved Methods for Marketing Honey—at the annual meeting of the Canadian Beekeepers' Association at Toronto, November 27, 28 and 29. He is also planning to attend the meeting of the Illinois State Beekeepers' Association at Springfield on December 6 and 7, where he will discuss the work of the Institute.

During the fall the Institute was represented at the New York State Beekeepers' Association meeting held at Trumansburg, and at the meeting of the Western New York Honey Producers' Association at Lockport. Dr. Barnard is planning to attend the short course for beekeepers at Cornell University in January in order to renew the acquaintances made at the New York meetings and to participate in the interesting discussions of honey both from a scientific and a practical point of view.

Whole Wheat Muffins

The Gold Medal Bakers' Service, supported by the Washburn-Crosby Company, has for many years supplied both bakers and housewives with recipes and formulas for baked goods. This information is printed on a 3x5 card, which is mailed to the baker or the housewife for filing in a special card index box. A recent addition to the box is an excellent recipe for whole wheat muffins. It looks so good, and the product is so good, that American Honey Institute, with acknowledgment to Gold Medal Bakers' Service, reprints it:

Recipe:
¾ lb. sugar
1 pt. honey
¾ lb. shortening
4 eggs
1 qt. milk
1 oz. soda
2 lbs. Gold Medal (fine ground) whole wheat
4 oz. Gold Medal flour
½ lb. raisins

Method—Cream sugar and shortening. Rub in the eggs gradually, then add the honey, then the milk with the soda dissolved in it. Dredge the raisins in the flour and add last. Work to a smooth dough. Drop in muffin tins and bake in a temperature of 400° F.

Another Honey Cake

The American Independent Baker, which is read by thousands of retail bakers, appreciates the importance of honey in cake formulas. In a recent issue it prints a formula for a highly profitable light fruit cake, filled with candied pineapple, pears, cherries, nuts, honey and plenty of raisins. The requests for honey recipes, which are coming to American Honey Institute from bakers and beekeepers alike, are so numerous that this recipe is suggested as well worth trying in the bake shop and recommending to baker customers:

Honey fruit cake recipe:
5½ lbs. sugar
2¾ lbs. butter
2¾ lbs. shortening
5 lbs. eggs
7½ lbs. soft flour
1½ lbs. honey
4 lbs. walnuts
14 lbs. Sun-Maid raisins
5 lbs. pineapple
3 lbs. pears
6 lbs. cherries
3 lbs. citron

Method—Cream sugar, honey and shortening fifteen minutes on medium speed. Add eggs in four parts and cream ten minutes longer, then add sifted flour and mix clear. Pour batter over fruit which has been previously prepared and rub in. Bake at 250° F.

Help Wanted

Most of the states maintain a Department of Markets, through which to develop more profitable sales of farm products. In Wisconsin, which appreciates the value of her honey crop, James Gwin, as Honey Marketing Agent, devotes his entire energies to finding new ways to use honey. In a recent letter to American Honey Institute he points out the possibility of using honey as the sweetening agent for canned fruit, particularly cherries, and he asks for suggestions by which the canning industry can be better advised of the value of honey. The Institute has gladly offered to cooperate with Mr. Gwin in bringing this subject to the attention of canners through the American Canners' Association and its research laboratories and through the canners' associations of the states which pack large quantities of cherries and other small fruits.

Honey is splendidly adapted for the canner's use, furnishing, as it does, adequate sweetness combined with natural flavors which bring out and enhance fruit flavors. The value of adding the word "honey" to the label of fine canned and bottled fruit products is in itself an inducement for using honey which should not be lost sight of.

You Can Aid in This Work

Arrangements have been made by which American Honey Institute will

prepare a series of four articles for printing in a leading journal of the baking industry. These articles will discuss honey as a natural food of the highest value, and will bring together for the bakers' use a large number of recipes in which honey is the important sweetening agent. One series of recipes will be developed for honey bread both of the white and whole wheat varieties. Another series will give cake formulas in which honey is used. And still another will discuss the hard honey cakes of Europe and the delicious product known to the baking industry as Pain d'Epices. American Honey Institute will welcome contributions from bakers and dealers in honey who serve baker customers and who through them may perhaps be able to secure new and better formulas for baked goods. Every recipe in which honey is used as a sweetening and flavoring agent is valuable. And out of a collection of such formulas, which we hope will come from every part of the country, it will be possible to develop formulas for the bakery trade which will meet a rapidly growing demand for such information.

When the articles have all been printed in the bakery journal it is proposed to collect them in a booklet for the use of bakers everywhere. If such booklets will be helpful to beekeepers and dealers in honey who wish to interest and secure additional customers in the bakery trade, the Institute will be glad to supply them.

Gladiolus as a Honey Plant

By O. W. Park, Ph. D.

Honeybees have been observed working on scores of different varieties of gladiolus (**Gladiolus hybridum Hort.**) here at Ames during the past three summers. Most of the bees gather nectar only, while a few gather only the pollen, which is of a beautiful orchid color; but occasionally a bee gathers some of both. The nectar seldom contains more than 30 per cent sugar, but is yielded in great abundance. The corolla tube is commonly filled with nectar to such a depth that, in spite of the fact that her tongue reach enables her to obtain only a fraction of the total amount present, the honeybee often obtains her load from a very few flowers. I am not aware that gladiolus has been reported previously as of any importance as a nectar-bearing plant.

The writer's researches during the past three years have included studies on the amount and richness of nectar secreted by a wide range of plant species. These studies show that, as a rule, nectars which are secreted abundantly are not as rich in sugar as are those secreted less abundantly. Gladiolus nectar is a typical example in that its yield is among the very highest and its sugar content among the lowest studied so far. It is sufficiently sweet, however, to induce the bees to gather it readily.

Gladiolus has become one of the most popular of garden flowers in this and other sections of the country within the last few years. In numerous localities it is now grown on a commercial scale for both flowers and bulbs. It is unlikely that it will ever be known as a major honey plant; but, since it blooms here during August, when other nectar sources are scarce, it may prove to be of considerable importance to apiaries located near extensive plantings.

Iowa.

Mechanical Honey Graders to Lessen Trade Disputes

There have been installed in the Hamburg and London offices of the Bureau of Foreign and Domestic Commerce an improved type of mechanical color grader for honey which is coordinated with the standard United States Department of Agriculture grades.

German and British importers of American honey will be invited to use these devices, if they so desire, in ordering and in checking shipment against sample. If, as is understood, American honey exporters are utilizing similar grading methods, the results should be beneficial in lessening costly trade disputes over color.

The Department of Agriculture has installed similar grading apparatus at strategic points in the United States for the convenience of American exporters who do not own such equipment themselves. These are located in the Department of Agriculture's offices, as follows:

Room 206, Wholesale Terminal Building, Los Angeles, California.

Room 902, 53 Park Place, New York City.

Bureau of Agricultural Economics, Washington, D. C.

Bureau of Entomology, Bee Culture Laboratory, Washington, D. C.

In addition to the above, many State departments of agriculture and State universities have these graders.

Further information may be obtained by those interested from either the Bureau of Foreign and Domestic Commerce or from the Bee Culture Laboratory.

R. L. Purdon,
Confectionery and Honey Specialist,
Dept. of Commerce,
Washington, D. C.

Conventions and Honey Waffles

(Continued from page 599)

can of peas with a little of their liquid and one tablespoon of honey.

Pineapple Salad

Arrange on each salad plate a ring of parsely. (Each winter I always keep a large pot of growing parsley in my kitchen window, and its lovely green leaves furnish many a dainty garnishing for our table.) Within this, place a ring of canned pineapple. Cut into small pieces three oranges, two canned pimentoes and one shredded carrot. Mix well with the juice of one lemon, one tablespoon of honey and a little of the pineapple juice. Place this in the hollow of the pineapple ring, forming a little pyramid, garnish with a dash of whipped cream sweetened with honey, and serve.

This was our impromptu supper. With a great pitcher of country milk and pat of butter, the salad and the waffles, it was a merry meal, and the jokes and repartee never were more clever or the laughter merrier as we waited our turns for the hot, golden-brown delicacies. So try them the next time you wish to entertain informally, and be convinced, and in the meantime, if the chance occurs, by all means take advantage of your state beekeepers' convention.

Report of Bee Division

The annual report of C. B. Gooderham, Dominion Apiarist of Canada, for 1927 is at hand. A brief account is given of the work for the year. Among the projects under consideration were: "Bees and Pollination," "Wintering Two Queens in One Hive," "Carniolan vs. Italian Bees," "Comparison of Hives," "Wintering," etc.

Those interested in securing copies of the report should address the Department of Agriculture at Ottawa, Canada.

Big Increase in Manitoba Production

In 1920 it was estimated that the total production of honey in the Province of Manitoba was 150,000 pounds. Last year the crop was estimated at 7,386,575 pounds. Such an increase in any agricultural output is almost without equal. From a heavy importing section Manitoba has become a heavy producer of honey in the short period of seven years. When the figures for 1928 become available even larger figures may confront us.

The Significance of Controlled Mating

By Dr. E. F. Phillips

SOME months ago Dr. L. R. Watson announced and demonstrated that he had been able, after months of effort, to devise a method for injection of spermatozoa from a drone into a queenbee so as to accomplish fertilization, enabling queens thus treated to lay worker eggs. Thus for the first time in the history of beekeeping a method was made public by which a control of the breeding of bees became possible. His work has stimulated interest in this field and now several others are working to devise different and more effective means to the same end. It is to be hoped that still better methods may be developed, but Dr. Watson must have credit for the first announcement of the accomplishment and method of this operation.

Since Watson's announcement was first made, many practical beekeepers and bee breeders, as well as persons interested in research in various phases of beekeeping, have discussed with me the significance of this discovery. Some commercial queen-rearers have desired at once to put this technique to use, so that all their queens will be tested. Others have been interested especially in improving their stock, assuming that for the present at least the run of matings will be accomplished in the usual way. It seems worth while to step back far enough to get a proper prospective of this whole field. What will here be presented comes from having witnessed the first public demonstration of this operation and several subsequent ones, as well as from a reading of Watson's several papers. Recently it was possible to spend a day in the Watson apiary, going over many of the colonies, examining records and getting first-hand information as to the present stage of progress, and this account is written with Dr. Watson's consent after that visit.

The operation is a delicate one, for the parts of both the drone and the queen with which one must work are small and easily injured. Watson himself damaged or killed a large number of queens before developing the particular technique with which he is now successful. The present technique is not of such a nature that it can go over into the routine of the commercial queen breeder satisfactorily. It seems not at all impossible that further study will reveal simpler and better methods, but that it will become one suited to routine matings is not at present indicated. A year or more ago a prominent queen breeder of the South learned that Watson was to demonstrate his method at the Cornell beekeeping short course and wired to learn whether it would pay him to make the journey to learn the method. Candor required that he be advised not to make the trip.

"What are we going to do about it?" This query, in Dr. Phillips' last paragraph, puts a problem up to beekeepers which is significant. Dr. Watson's highly valuable study in race improvement can well mean rich returns to beekeeping in a few years. Can we find an institution with both the resources and the interest to keep him on this study indefinitely? Let all those who are in a position of influence give this need serious consideration.

Dr. L. R. Watson, whose work on controlled mating has been one of the outstanding events in beekeeping

The field of usefulness of this method is, however, still a large one. It may be worth while to suggest a few of the uses, for the purpose of indicating ways whereby this technique may help beekeeping. We have a large number of breeders who are rearing queens of special strains for commercial sale. Taking as an example the Italian bees selected for light color, as the case now stands, we do not know which color, yellow or black, is dominant in inheritance, although several divergent statements have appeared in print. Neither is it known whether the color factor in inheritance is a single or unit character or whether it is the result of a combination of two or more unit characters. One might assume as a practical start on this problem that it is a unit character. At this stage of the development of this technique it is quite possible to make a dozen or more successive sister-brother crosses, and if the color factor is a unit character one would be able to fix the five-banded type more reliably than at present seems to be the case. Even with the risk that color is a dual or triple factor, the trial, based on a supposition that it is a single character, would not waste much time and effort, and we should then know more about color inheritance.

The chief value of the technique seems to lie, at the present stage of progress, in its usefulness for studying inheritance in honeybees. So long as all matings must occur in the open air and without individual control on the male side, this was virtually impossible. As a result, beekeepers have been compelled against their wishes to use the slap-dash methods of selection which so long prevailed in breeding of many other animals and plants. With the present technique, it becomes for the first time possible to undertake a scientific study of bee inheritance.

Two lines of effort suggest themselves in such an undertaking, of which the first is a study of the inheritance of some one character, such as tongue length. This, be it said, is not so fundamental as the other line of effort to be mentioned. About 1900 and 1901, American beekeepers were greatly interested in obtaining long-tongued Italian bees, so that the bees might more effectually work on red clover, and a number of breeders measured tongues and thought that they had obtained stock with tongues longer than the average. At that time two serious handicaps prevented reliable and permanent results. The first difficulty was, of course, a lack of control of mating, which the Watson technique now remedies. Furthermore, at that time the methods of studying variations which can be mathematically expressed were just getting under way in biology, and that branch of biological method was so little understood that it was virtually impossible for one to learn definitely whether or not progress was being made in selection for greater tongue length. Now, however, biometric methods are well understood and constitute a safe working tool for the student. Our

Russian colleagues have accepted this tool and are making great strides in a study of variability, far outstripping our efforts on this side of the water. They have obtained some startling facts about tongue length, and Mr. W. W. Alpatov, a resident of Moscow and now at the Johns-Hopkins University, has already published some accounts of this work for the benefit of American workers. It is, as a matter of fact, a question whether attempts at controlled matings in this field should be the first step, or whether further studies of variation in bees should not first be made, in order to permit us to attack the problem of selection more intelligently.

A paper read at the recent Entomological Congress reported the finding of a special race or strain of Caucasian bees with longer tongues than are found in any other race of bees so far studied, considerably longer than those of Italian bees of either Italy or America. These Caucasian bees are not the same as the Caucasian bees which have been tested in this country. Biometric work so far done indicates that tongue length is inherited and that it is either independent of general body size or that it is actually correlated inversely with body size. Taking the Caucasian bees with excessive tongue length and crossing them by the Watson technique with our blacks, which have exceedingly short tongues, would seem to offer a method of determining how tongue length is inherited.

The practical beekeeper may perhaps ask why we cannot take these Caucasian bees with long tongues and merely select for still longer tongues. This might be possible, but the safe and sane method would seem to be first to study the method of inheritance of tongue length, so that crosses may be made more intelligently and not by hit and miss methods.

Another and most valuable use for the Watson technique lies in a general study of inheritance, by methods which have been applied to other insects. Prof. T. H. Morgan, now at the California Institute of Technology, began several years ago a study of the inheritance in the fruit fly, this being an insect especially suitable for such study because of the ease with which they can be bred in the laboratory and the shortness of the generations. Through this work of Morgan and his associates, the interrelationships of the inheritance of various hereditary factors in this insect are known more thoroughly than for any other animal or plant, and this work serves as a model for other workers. Recently, Professor Muller, of the University of Texas, has announced that if fruit flies are exposed to X-rays at certain stages of their development, mutations arise far more frequently than under the usual conditions of the laboratory, this enabling him to speed up the study of inheritance. The methods of Morgan in studying inheritance and those of Muller in stimulating mutations for study are now going over into other lines of study and are resulting in great progress in our knowledge of inheritance.

Bees present a complex problem in such experiments. This complexity arises in part from the fact that drones develop from unfertilized eggs, but, while this increases the complexity of the problem, it also simplifies it somewhat, for by a study of drones from a queen it should be possible to determine her complex of inheritance, assuming that the factor under observation is inherited the same way in the two sexes, which may for example not be true for color. Furthermore, bees have thirty-two chromosomes, or organs, bearing hereditary characters, and this increases the complexity over cases like fruit flies, for example, in which there are only four chromosomes.

Field laboratory, apiary and laboratory building at the home of Dr. Watson, Alfred, New York. Queens to be mated are brought in from the hives to the instruments seen on the bench before the window. Drones are released on the window glass, where they fly about until needed.

It would seem highly desirable that studies of inheritance in bees be undertaken along the lines used by Morgan and others for the fruit fly, and also that use be made of exposure to X-rays to see if mutations can be stimulated. It would be a mistake not to use these available tools of the geneticist. The methods used are naturally highly technical and can be useful only in the hands of trained and qualified investigators. There is obviously nothing to be gained by shooting X-rays or other light rays promiscuously about the apiary. Furthermore it would probably be a matter of years of study to get facts which would be worth serious consideration in practical beekeeping. There is no short and easy road in such investigations. It may be stated that Dr. Watson is beginning this study of inheritance and has ready to go into winter quarters some queens which will be useful in his work of another year. These queens are first generation crosses between races differing in marked characteristics.

A word or two about the effectiveness of the Watson method of artificial insemination may be in order. When queens mate normally in the open air, it appears that the spermatheca is usually well filled with spermatozoa at the one mating. There are records and rumors of queens mating twice, which, if correct, might be interpreted as indicating that a full supply of spermatozoa had not been obtained at the first mating, but such cases are at least rare. With the instrumental method devised by Watson, the results are less satisfactory. In a recent article in the Quarterly Review of Biology, he gives the following data regarding the insemination of ninety-six queens on which he had operated up to the close of the season of 1927. Of these, 34 per cent re-

ceived no spermatozoa in the operation. Of the queens which did store more or less spermatozoa, 21 per cent received less than a 5 per cent supply, according to the best estimates possible from the number of worker eggs laid or the examination of the spermatheca after death. Of those partially inseminated, 79 per cent received 5 per cent or more; 38 per cent received 10 per cent or more; 17 per cent received 50 per cent or more; 11 per cent received 75 per cent or more, and 6 per cent apparently were completely inseminated. This indicates that at this stage of the work the application of the method to commercial queen-rearing is impossible.

Dr. Watson has kindly given me, with permission to publish them, his results for 1928, which are stated in a different manner. During this season he inseminated 104 queens, with the following results: Queens lost before an estimate could be made, 21; queens inseminated to from 1 to 5 per cent, 42; 10 per cent, 18; 20 to 30 per cent, 5; 50 per cent, 4; 70 per cent, 2; 75 per cent, 1; 80 per cent, 1; 90 per cent, 2; completely, 3; queens for which no report is yet available and which are being saved, 5.

The large number of queens marked lost is interesting. While examining his apiary with Dr. Watson in October, we found two nuclei in which evidences of beginning queen-cells were observable, which suggested that the bees were about to supersede their queens. In another colony we found that the artificially inseminated queen had been superseded by a daughter which had mated outside the hive. One would scarcely expect supersedure in October in New York State. The number of queens that are lost and these evidences of supersedure so late in the season combine to suggest that in some fashion the bees "recognize" these queens are not quite normal. Looking at the brood in October in some of these colonies, any competent beekeeper would have said that the queens were unsatisfactory—that is, from the standpoint of the beekeeper, for there were cells of drone brood, which would not normally occur in October. This to the beekeeper would suggest an old or failing queen. Just how the bees detect this inability of their queens to rear only worker brood, when only workers would be expected in a normal colony, is one of the mysteries of the hive.

For study of inheritance, this rearing of an abnormal number of drones is no disadvantage, and might even be an advantage in furnishing an abundance of drones for studying hereditary complex of their mothers, but it appears that those who use this method for this purpose must be on the alert for supersedure or their valuable stock may be lost. This comment is made as an indication of still one more problem in this work and also as further indication of the present chance of utilizing this method in commercial practice, but certainly not in condemnation of the technique. I have taken occasion thus to study Dr. Watson's 1928 results in order to bring out points which, I believe, have not been previously mentioned.

His 1928 records which he has furnished me also indicate the number of times that each queen was injected, these numbers varying from one to five. I am unable to find any correlation between loss of queens and the number of times they were previously inseminated, or between the estimated percentage of insemination and the number of operations.

The lack of complete insemination seems to have little or no bearing on the usefulness of the Watson technique in the conduct of breeding experiments. Taking the suggested work on tongue length, for example, one would need a hundred or more workers of the several crosses for measurements, and this small number could be easily obtained from queens showing even 1 per cent insemination. For the work suggested comparable to that of Morgan and Muller in the fruit fly, only a small number of drones and workers would be required, and not the thousands which come from normal matings. For repeated brother-sister crosses for the purpose of fixing types, only a few eggs from worker-cells and an equally small number of drones would be required for practice in the inbreeding required. So, from the standpoint of breeding experiments, the technique at present seems all that one requires.

During the season just closing, Dr. Watson has been seeking to improve his technique in various ways, especially with regard to the best methods of obtaining the requisite supply of spermatozoa in the delicate syringe. Apparently he has made progress, but it may as well here be confessed that I advised him not especially to worry over this phase of the problem. If somebody else comes along with decided improvements in technique, that will in no way reduce the credit due Watson for making this discovery, and it seems to me that Watson can use his skill in genetics to better advantage in conducting further breeding experiments, leaving to others improvements in the technique itself. If by chance, in connection with his breeding work, he should come upon far better methods of technique, so much the better.

A good start has already been made in breeding experiments. Starting with supposedly pure Carniolans, Caucasians, golden Italians and so-called Albinos, Watson has made first crosses in various combinations. With the queens of these first crosses on hand he can next year make the second crosses, and it is at this stage that the real analysis of inheritance begins. One serious obstacle to such experiments is the fact that one cannot be sure of the purity of the stock used in the original crosses in any of the races or strains now available to us. The crosses so far made suggest that the stock is not in all cases well fixed, that it is in fact what the geneticist calls heterozygous. In the event that further crosses show this to be actually the case, it may be necessary to make a considerable number of brother-sister crosses of the supposedly pure stock to be ready to begin crosses between races. There has long been a suspicion among American beekeepers that Italian bees are not a pure race, and the marked variability of imported stock suggests that this is even more true of the bees of Italy than of the Italians developed by selection on this side, which actually seem superior to the bees native to Italy. Breeding experiments properly conducted will once and for all time answer this query.

And now there is need to discuss a highly practical phase of this work. Unless one is well endowed financially, so as to be able to carry on this kind of work for some years on his own resources, it becomes necessary that the work be supported by some institution which has the necessary funds. No individual and no institution should be misled to the belief that the whole question of inheritance in bees can be settled in a few short months of work, for that is not the way such problems are solved. So far, none of the institutions which are conducting research in beekeeping have undertaken this work, and also no person of unlimited financial resources has become interested in it. The question is really one for beekeepers to consider, for unless we see to it that such work is undertaken by some institution financially capable of doing it, we shall be little farther ahead than we have been in the past through the Watson discovery of a method for artificial insemination. It will require the expenditure of several thousand dollars and many years of serious study on the part of some person or persons thoroughly familiar with methods of study in

genetics. Personally, I believe that such work must be done if beekeeping is to make the progress for which we all hope. The question which I have so far been unable to answer is: What are we going to do about it?

Is This a Record Crop?

R. A. Morgan, of Vermillion, South Dakota, assisted by a young man named Arthur L. Loomis, secured 803 sections of comb honey from one colony of grey Caucasian bees during the summer of 1928. The sections weighed not less than thirteen ounces each. This is 187 more than Mr. Morgan secured in 1925, when he reported 616 sections of comb honey from one colony,

Mr. Morgan believes that he still holds the record of the largest crop produced from one colony of bees in one season. For this report he secured a prize of $60.

In the ordinary location such a crop would be impossible, and to many such a figure seems incredible. However, large yields are common in the sweet clover region and we have come to expect big stories from that section. The American Bee Journal is interested in hearing of big crops from single colonies and large averages from all colonies in an entire apiary. What would be a very large crop in one neighborhood might seem ordinary in another. We would like to know something about the maximum yields in different localities. What is the biggest figure which has been verified in yours?

Beekeeping Is a Great Business, When You Can Feel This Way

The following is quoted from the October "Beetimes" of the California State Association:

"A beekeeper from the farthest end of California visited our office the past week. He told us: 'My crop was so good and I have been so successful in selling my honey; in fact the future is so bright for the honey industry that I feel free this year to travel some distance to the convention. So you may expect to see me at Modesto in December. I am naturally very keenly interested in getting first-hand knowledge of what is going on in the honey world.' "

Business is business. When it is good it brings optimism; when bad it brings pessimism. Too many beekeepers have been pessimistic the last few years. I believe our friend in California is one of a long line of beekeepers who will be feeling just as he does in a short time.

Minnesota's New Leader Distinguished in Several Fields

Dr. Maurice C. Tanquary has taken charge of the work in bee culture of the Department of Agriculture, University of Minnesota, to succeed Francis Jager, whose resignation became effective October 1.

Dr. Tanquary comes to Minnesota with an established reputation for broad training and large practical experience in the various fields of zoology and entomology. He has traveled extensively and has handled bees on a large scale.

A native of Illinois, he was graduated from Vincennes University in Indiana and later received his bachelor's, master's, and doctor's degrees at the University of Illinois, and also studied at Harvard. While teaching at Illinois he was selected its representative as a zoologist on the Crocker land expedition to the Arctic. This expedition, led by Donold B. MacMillan, a celebrated Arctic explorer, was organized under the auspices of the American Museum of Natural History, the University of Illinois, and the American Geographical Society, to search for and map the coast line of the so-called Crocker Land which Rear Admiral Peary believed lay north of the Polar Sea.

After his return in 1916 from the North, he accepted appointment as Assistant Professor of Entomology in the Kansas State Agricultural College. In 1918 he was advanced to Associate Professor, and in 1920 resigned his position in Kansas to become Chief of the Division of Entomology of the Texas Agricultural College and State Entomologist for Texas.

During his college service Dr. Tanquary kept in touch with all practical phases of beekeeping by maintaining extensive apiaries of his own. In 1925 he located at Fargo, N. D., to engage in honey production in sweet clover and alfalfa districts, and now has eight hundred colonies of bees at seven different stations in that state and Minnesota. At his central headquarters he has handled as much as 150,000 pounds of honey in a year.

Dr. Tanquary is a member of the American Association for the Advancement of Science, the American Association of Economic Entomologists, and a charter member of the Entomological Society of America.

More Publicity for Honey

Every six weeks the Evaporated Milk Association, through its Educational Department, sends out "clip sheets" to magazines and newspapers throughout the country, in which they feature different food material containing evaporated milk.

Their clip sheet for September has just come to hand and we find two recipes in which honey is included. They are given below:

Land of Canaan

Angel food cake.
Frozen honey cream
Chopped nuts and cherries.

Cut angel food in squares one-half inch thick. Place on top a slice of frozen honey cream that has been packed in a square mold. Garnish with nuts and cherries.

Frozen Honey Cream

8 egg yolks
1 cup honey
¼ teaspoonful salt
2 cups boiling water
2 cups evaporated milk chilled and whipped

Beat egg yolks. Add salt and boiling water slowly, stirring constantly. Add honey, cool and fold into whipped milk. Freeze with a 1/6 salt-ice mixture. Yield: 1½ quarts.

Burning for American Foulbrood

According to H. J. Ryan, Horticultural Commissioner of Los Angeles County, 90 per cent of diseased colonies found in that county are burned. Under the old law not to exceed 10 per cent of the cases were destroyed by fire. Because of the great fire hazard during dry seasons, a permit to burn must be secured from the Fire Warden. A central salvaging plant is available in Los Angeles for disposition of refuse and salvaging of equipment.

Honey for the Camper

A Plan to "Get the Idea Across" to the Public

By Natt N. Dodge

Welcome food after a day's trek, by wheel or foot or horse. Then honey is an energy restorer of value

THE lack of honey publicity, about which there is chronic complaint among beekeepers, is not due to any dearth of talking points, based on proven facts, held by the product of the hive, but rather to the inability of beekeepers to agree upon a plan for bringing them to the attention of the public, and for financing the procedure were any approved. The American Honey Institute is the result of the first real effort made to broadcast honey publicity, and it is sponsored originally by the manufacturers of beekeeping equipment and supplies.

In a discussion of the superiorities of honey, and the talking points resulting therefrom, there are so many ways in which this sweet surpasses the majority of commercial saccharide foods that a complete and well-grounded resume of the subject would confuse the public if all released at one time. Any properly planned publicity program endeavors to lay clearly before the people one single advantage of the commodity being exploited and to thoroughly drive home this lesson before another talking point is introduced.

To illustrate this fact as well as to build a foundation for this article, let us consider honey from the viewpoint of the out-of-door man or woman. By the out-of-door person is not of necessity meant only the professional camper or hunter, but also the great mass of humanity which annually goes vacationing, and which, with the growing popularity of the automobile, is taking its yearly holiday by camping out and enjoying as much of the out-of-doors as time and finances will permit. The one talking point to be stressed is, therefore, the value of honey to the camper. Not only does this talking point have a very wide and strong appeal, but its "pull" should be most effective during the summer months, when the demand for honey is normally slight, and when any increase in honey consumption would be most acceptable to the honey industry.

Honey is a commodity of high density—that is, its weight is great in proportion to its volume, and, therefore, much of it may be carried in a small space. This is of the utmost importance to the camper, for space with the nomad is at a premium, and compactness in the larder is his watchword. A pail which will hold five pounds of honey will contain but little over three pounds of common sugar. Honey may be used in place of sugar, syrup, jelly, and jam, thereby replacing four items with one. Another point is space-saving. Honey is a concentrated sweet, so that less of it is necessary in obtaining a definite degree of sweetness. Its use is, therefore, economical. It is high in easily liberated heat and muscular energy. For persons engaged in vigorous exercise, such as is demanded from the camper in hiking, mountain climbing, swimming, and the like, the fuel foods are needed, and honey is among the most desirable of these. The practice of experienced mountain climbers of munching raisins or sweet chocolate while undergoing the strenuous grind of climbing difficult peaks points out the value of the energy-producing foods in out-of-door activities. Furthermore, honey has mild medicinal properties, not the least of which are its laxative propensities. On camping trips, where changes of drinking water and the heavy fare of camp life are conducive to digestive disturbances, the value of honey from this standpoint cannot be overestimated.

A moment's cooling rest on the rugged slopes of Mount Rainier. For climbs of this sort, honey is an ideal energy food.

It is apparent from the foregoing brief outline that honey has many advantages for the camper, all of which should be quickly appreciated by the lovers of the open spaces if properly and forcefully brought to their attention. Mankind's love for heroics gives the honey industry a very unique opportunity to have broadcast some effective honey publicity, provided that it is sufficiently alert to grasp the opportunity before it is too late. At the time of this writing, the interest of the world is centered upon the south polar exploration expedition of Commander Richard E. Byrd of Arctic fame. This expedition is, in effect, a camping trip of long duration, being made under most gruelling conditions. Any article of food which is shown on this expedition to be of value in maintaining the strength and energy of the men of the exploring party will be accepted by the every-day camper as of use to him in his comparatively minor undertakings. So closely will the world be watching the day-by-day progress of this Antarctic expedition that outstanding items of the diet should come in for repeated publicity, and these reports

Paradise Valley and the Tatoosh Range, Mount Rainier National Park. This is a wonderland for the camper and mountain climber

will be spread over the earth by newspaper and radio. Furthermore, if honey is taken by Byrd on this epochal exploration, that fact alone will stamp the sweet as having his official sanction and approval, and may later be used as a weighty talking point in any publicity which the honey industry may be able to sponsor.

Whether or not Commander Byrd has included honey as an item of food to be carried with the expedition, the writer does not know. He does know that the expedition will soon be outfitted and will assemble at its rendezvous at Dunedin, New Zealand, from which point it will start toward the South Pole some time in November or December. The writer has also read that the expedition has not as yet succeeded in obtaining all of the backing desired, and that any suitable gifts which will aid in outfitting the expedition or in any way assist in insuring the success of the undertaking will be very welcome.

A gift of several hundred pounds of honey from a beekeeper, from the American Honey Institute, or from the American Honey Producers' League would not only provide the expedition with a healthful and highly energizing sweet and fuel food, but it would also give the honey industry an opportunity to drive home to the camping public one of honey's striking talking points.

Stingless Bees and Stinging Bees in the Modern Garden of Eden

By Jes Dalton

Mr. W. B. Gehrels, now of Natchez, Mississippi, but who formerly kept bees for ten years in Costa Rica, is responsible for the following related incident:

Gehrels kept five hundred colonies of Italian stock in one apiary. Nearby in the splendor of a palm-thatched palace Francisco Diaz dwelt, and housed his stingless bees in hollow logs with the ends plastered up with a mixture of mud and cow dung, the logs suspended by wires under the eaves of the Diaz palace.

The process of harvesting with Francis was simple: Take a kink in one of the wires thus elevating the log; set a gourd under the other end, now much lower; punch many times down through the log, breaking down the combs and making a general wreck, and soon a tiny stream of not overly choice or scrupulously clean honey trickled down into the gourd. The ends were replastered and the bees left to mend the wreckage and store some more honey.

The dry season, which is the harvest, being over, Francis, with family gather about, all the juniors sans clothes and Francis not overdressed, the harvest began, and immediately the consumption. Much in harmony with the surroundings, Francis' family became appropriately smeared.

While Francis' bees, minus stings, were busy clearing up and reestablishing their home, the opposite condition prevailed among Gehrels' myriads of Italians. They were robbing — honey streaming from the Diaz hives, overflowing from gourds; honey on naked children, in their hair, on the ground. What a welcome feast! Go to it, Italians. And they did.

Francis and family went to the jungle, but Gehrels had to hunt them out one by one, smoke the bees from them and wash them, clean up the logs, and store away the gourds. Only Gehrles can describe it, and how his diligent Italians went into a store and stole five hundred pounds of sugar (Gehrels paid for this amount, but the shopkeeper claimed the bees carried off half a ton).

These are only a few of Gehrels' interesting experiences of ten years' beekeeping and honey exporting from the tropics.

Not the least of these is the shipping down of six colonies, increasing them in one season to seventy and taking off seven thousand pounds of honey. The thousand colonies he sold on leaving were all built from the original six. But listen further to his stories of ox cart transportation, of wet seasons, robbing and dwindling, and molding combs, before you get too enthusiastic.

Wasps and their Ways

By O. A. Stevens

WASPS are the closest relatives of the bees and are like them in many ways. A few species, as with the bees, are social insects living in large colonies, the queen hibernating and beginning the nest the next spring. These include the hornets and yellowjackets (**Vespa**), which are familiar to everyone, not only because of their remarkable paper nests, but also because of their lively reception of inquisitive visitors. The genus **Polistes**, also with several species, includes the rest of our common social wasps, these building the open paper nests of a single layer of cells.

The wasps are very much like the bees in the structure of their bodies. For the most part they are more slender, less hairy, and are brighter colored. Reds and yellows appear very commonly in the markings, though some species are entirely black and others metallic blue or green. Many wasps are common visitors of flowers, the adults feeding upon nectar. They are not especially useful in flower pollination, though a few flowers seem to be adapted to their visits. Some wasps are quite hairy, but as a group they lack the feathery, pollen-carrying hairs of the bees. The first joint of their hind tarsi is slender and cylindrical, not enlarged nor flattened as it usually is in the bees. Some species of bees which do not build their own nests or collect pollen have relatively smooth bodies and unspecialized tarsi, so that they quite closely resemble wasps.

The nests of most wasps, like those of bees, are placed in the ground. Some species use hollow stems or other openings and a few build nests of clay. Some nest in communities with many individual burrows close together. More commonly they are scattered, and one finds a nest only by chancing to come upon a female at work. She digs a tunnel to the depth of a few, often only one or two, inches and enlarges the end somewhat to form a single cell. In some species there are lateral branches from the main burrow, each with its cell.

The cells of the nest are provisioned with some kind of insect which has been paralyzed by stinging. The egg is deposited upon this insect's body, hatches within a day or two and completes its growth in perhaps a week. The adult wasp may emerge within a month after the egg is laid, but more commonly not until the next season. The hornets and some other species provide the young with fresh food from day to day. The hornets capture flies, from which they remove the harder portions, masticating the remainder for their young.

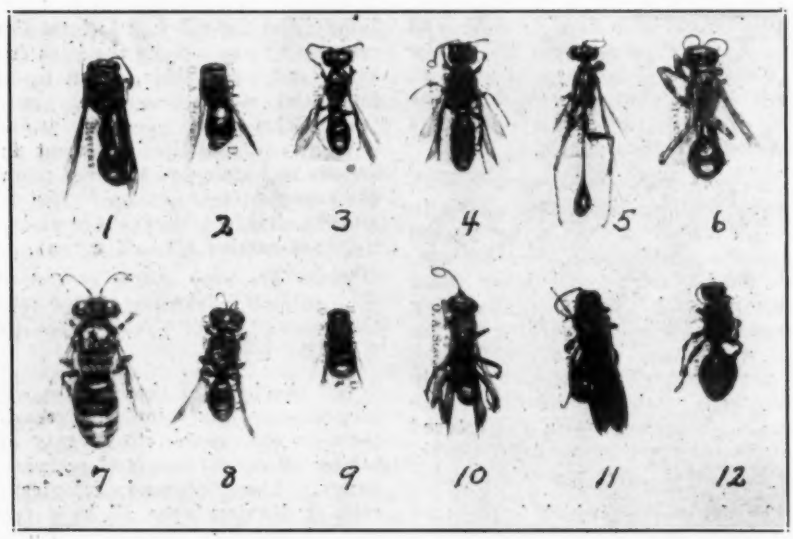
The number of species of wasps seems to be somewhat greater than that of bees. They have attracted a little more attention than the bees, perhaps because of their rather larger size and brighter colors, probably more upon account of their pursuit of insect prey. Their behavior in burrowing, in capturing insects and in conveying them to the burrows has been the subject of many observations, and yet we know but little concerning the habits of the greater number of the species. One writer estimates that the life history is fairly well known for only about 200 of the 10,000 described species.

For an account of their habits I think there are few books more interesting than that of Fabre on the Hunting Wasps. His story of a wasp's accumulation of beetles, of which he had been able to find but a specimen or two, arouses one's wonder and respect for the little huntress. His account of sending his whole family scurrying through the fields seeking the proper insect for his experiments, or of his discovery that he had offered only male grasshoppers to a wasp which insisted upon females, are indeed entertaining as well as instructive. If one wishes more condensed information on the subject he will find most of the American material in a recent book by the Raus, and an earlier one by the Peckhams.

The male wasps, like the male bees, are "perfect gentlemen" and have no vicious lances to greet one's prying fingers as do their consorts. Males usually can be recognized by their more slender form and less industrious movements, but probably anyone who has given them sufficient attention to recognize them on sight has passed the fear of a few stings. The female velvet ants, which run swiftly but do not fly, have long had a reputation for powerful stings, but my friend Dr. Mickel, who has studied them intensively for a number of years, tells me that the best way to catch them is just to pick them up in one's fingers. You get used to the stings, he said.

The velvet ants are so called from their thick, velvety covering of hairs, which is commonly red and black in color. The females seem to have lost caste, for they are wingless. This is one of the largest groups of wasps, including more than a thousand known species. They are found especially in warm, sandy or dry regions, and North Dakota is well to the northern limit of their range. They are parasitic in their habits, the females depositing their eggs in the burrows of bees, other wasps, or beetles.

The familiar "mud-daubers" are among the best known wasps, though not in North Dakota, for here they appear but rarely in the southern part of the state. What boy from a region where they are common has not watched them collecting their pellets from a mud spot by the well, or



Some common wasps: 1. Eumenes, a mason wasp; 2. Odynerus, one of the folded winged wasps; 3. Philanthus; 4. Cerceris; 5. Sphex, a formerly called **Ammophila**, which captures caterpillars; 6. Chlorion, formerly called Sphex, which captures grasshoppers; 7. Bembix; 8. Crabo, catches flies; 9. A cuckoo wasp; 10. Psammochares, which captures spiders; 11 and 12. Dasymutilla, male and female velvet ant. About natural size. Photo by R. A. Corbett.

broken open their cells and observed the numerous spiders with which they are furnished? These wasps belong to a family sometimes called "thread-waisted" wasps, from the very slender basal segments of the abdomen. Other species of this family which burrow in the ground are well known. I have an early recollection of watching one of these at work while I was supposed to be hoeing sweet potatoes. She entered the burrow and labored with a squeaking sound, soon emerging and flying a few feet to drop her load of dirt. After a time she fitted a lump of dirt into the top of the hole, filling in smaller pieces about it and scratching some loose dirt over it. It is evident from other observations that this was a temporary closing of the burrow while she went in search of provision for it.

A year ago last summer I watched three females of different species working within a few yards of each other. One flew out several feet to drop her load, the second but a few inches; the third merely backed out a couple of inches, pausing every three or four trips to pull back farther the top of her rapidly growing pile. Most of my time was spent watching the third wasp, and I was fortunate enough to see her arrive astride a grasshopper ten times her own weight. It was with misgivings that I captured such an industrious worker after she had placed the 'hopper in the hole and packed firmly the dirt above it. Science demands accurate identifications, and we shall hope that this specimen of wasp and prey will adorn a museum for many a year.

On another occasion I watched a wasp bring in and bury a long smooth caterpillar, while a few feet away the nest of another species contained five stout hairy caterpillars and one slender smooth one. Fabre describes a wasp of the same genus digging up cutworms. A single large insect may serve as provision for a nest, or with other species several smaller individuals are used. Some wasps practically always use the same species of insect; others use several similar species and less commonly quite different ones may be taken. If the captured insect is not too large, the wasp holds it beneath her while flying to her burrow, and quite heavy burdens are sometimes transported in this manner. The larger insects she usually straddles, grasps the antennae, or a fold of skin in case of caterpillars, and drags them beneath her.

The Peckhams once watched a wasp for two hours while she dragged her prey a distance of 261 feet, apparently having lost her way. Arriving at the burrow, the wasp almost always leaves the insect near by and goes in to turn around before dragging it in. Often it is left a few feet away while she works some more on the burrow, perhaps with an occasional trip back to examine the capture. Many writers note that the wasp in leaving the nest flies or runs to and fro about it, seeming to make a careful study of the surroundings. If an object beside the opening be moved away while the wasp is away, she returns to the object and seeks her nest beside it.

Fabre marvels at the accuracy with which the wasp inserts her sting to strike the nerve centers and produce a paralysis lasting several days. This prevents the insect from struggling to escape and insures its remaining fresh until the wasp larva can use it. It seems, however, that wasps, as well as humans, may err. Cases are recorded where the insects were killed and others in which they recovered from their stings. The grasshopper which I retrieved jumped from the table the next morning and lived for nearly a week. A second one, buried by the same wasp the day before, seemed quite dead.

I was especially interested in reading Fabre's account of the **Bembix**, for I had seen a similar species on the sand dunes of Richland county, North Dakota, behave in precisely the same manner as did his in southern France. It is remarkable how they can alight on the shifting sands, with no apparent landmarks, and in a very few seconds dig to their tunnels below. We may marvel that they are able to endure the temperature on a hot day, and Dr. R. N. Chapman has shown that they cannot for more than a short time. The sand below the surface is moist and not so hot.

The **Bembix** provisions her nest with flies, which she brings in from day to day instead of providing a full store at the outset. The tunnel, therefore, remains open and the loose sand at the surface serves to close it against intruders, for various species of parasitic flies are ever on the alert to place their eggs in the nest. A different **Bembix**, burrowing in hard soil, closes the entrance with a little loose dirt each time as she leaves.

These Bembices are powerful wasps. The one which I watched sent the sand flying between her legs, much as does a dog when digging his hardest. A large related species of the South is the "cicada killer," which captures and carries away these large insects. Other members of the family provision their nests with grasshoppers, and still others with stink bugs.

Another large wasp of the South is the "tarantula hawk." Kellogg says that sometimes the wasp falls a victim of the spider or that both perish in the encounter. This species belongs to a family known as "spider wasps" or "road wasps," of which there are many species in the warm regions. They are long-legged, active wasps, usually seen running on the ground and nervously twitching their wings. Spiders are their regular prey, and many of them are said to catch the spider before starting a burrow, whereas most wasps dig the burrow and then hunt the provisions.

Another family, of which many species are found in the tropics, but few in our latitudes, is that represented by the genus **Scolia**. Some of them are quite large, and they are compact, powerful insects. Fabre was for years unable to discover their habits, and other naturalists seem to have had the same experience. He finally found that they did not open a tunnel, but simply crawled through the ground seeking beetle larvæ, which they sting, and deposit their eggs upon. Hence their short, stocky legs are significant. The white grubs, larvæ of May beetles, and their relatives are the prey of this family of wasps so far as known.

A group which is well represented in our region is the genus **Cerceris**. These are fairly large wasps, usually with bright colored bodies, and the abdominal segments strongly constricted. They spend much time upon flowers such as prairie clover, goldenrod or other plants which have small flowers in large clusters. They nest in the ground, and beetles and bees have been recorded as the prey of certain ones, but very little is known about most of the species. The Peckhams found their burrows deep and difficult to investigate, the wasps suspicious of visitors and hard to study.

The philanthids, which resemble the cercerids, provision their nests with bees. One European species, at least, preys upon the honeybee, and others are recorded as capturing various of the smaller wild bees.

The crabronids appear to be a more northern group than most others and are well represented in our region. They usually are black with yellow markings, and often are recognized easily by their large heads, which are nearly square when seen from the front. Some species are diggers, but for the most part they tunnel into the pith of elder, raspberry and other plants, or in wood, provisioning their nests with flies.

The mason, or potter, wasps construct nests of clay. Some species make jug-shaped nests attached to twigs, hence the name "potter" wasps. These are only a small branch

of a large family related to that of the paper wasps, and both may be recognized by the fact that the wings are folded once lengthwise when at rest. Several small caterpillars are the usual provision for the nest. A peculiarity of their nesting is that the egg is suspended by a slender thread and is laid before the caterpillars are brought. Some species of this family nest in plant stems, many burrow in the ground, some of which have been observed to carry water to help with their digging operations.

Some of the most brilliantly colored wasps belong to the family known as "cuckoo," or "gold" wasps. These are metallic green or coppery in color and may easily be mistaken for certain similarly colored species of bees. They are parasitic in habit, depositing their eggs in the nests of bees or other wasps.

I have referred to most of the larger or more conspicuous groups of wasps. There remain a host of others which prey upon small grasshoppers, leaf bugs, flies, plant lice, etc. It will be noted that for the most part wasps are decidedly beneficial, because they destroy many injurious insects. The Peckhams found one species nesting in a straw stack and estimated that at least 6,000 spiders had been stored in the stack. In another instance they observed one wasp to capture sixteen crickets in four hours.

Selling Honey on Michigan Boulevard—and For Only a Dime

New 5 and 10 Cent Store on Select Thoroughfare Offers a Five-Ounce Jar For a Dime and Gives Near-Entrance Display to Books Containing Novel Receipts For Use of Honey.

By A. A. Shields

THE five- and ten-cent store chain, F. W. Woolworth & Co., has recently opened a pretentious "dime store" on Michigan avenue in Chicago. Along with this invasion of the select merchandising thoroughfare it is interesting to note that this is one of the first stores to feature the sale of honey.

In the food specialty department, which is located on the main floor, a five-ounce jar of extracted honey is sold at 10 cents. It bears the Lake Shore brand and is labeled as put up by the Lake Shore Packing Company of Chicago, evidently a newcomer, as it is not found in the latest issue of the Chicago telephone directory. Another brand, "Worth," is slightly larger—five and a half ounces for a dime.

This is of interest to honey producers because the chain variety stores have been hailed by advertising men as excellent samplers. The manufacturers of many toilet articles put up special packages for sale in the 10-cent stores, and, according to advertising journals, this method of sampling has resulted in the sale of the larger packages. People try it at a small cost and become regular consumers in larger quantities.

If honey were sold in all the stores of some of these larger chains it might prove a benefit to the entire honey producing industry.

An effort was made to learn if honey was to be sold in the world's largest 5- and 10-cent store which the same concern was opening on Washington street in Chicago. In the opinion of an employe of the food department it would be on sale there. This could not be verified, because the inquiry was made just prior to opening, when stock was pouring into the mammoth store and department managers could hardly be located in the dozens and dozens of aisles. This store will be somewhat of a show place, because it really does dwarf anything yet attempted in the 5- and 10-cent line, and that would be a good setting for honey in small-sized containers.

But this is not all that is being done through the 10-cent store to promote honey. Front-of-the-store location at the Michigan avenue store was given to the display of books which give many recipes for the use of honey.

These books are published by the Woman's World Magazine Company, Inc. They are in calendar form and give some seasonable uses for honey. Take, for instance, the "Candy Calendar." Suppose in March a woman wants a "delicious and economical recipe." She turns to that month and her eye is attracted by a two-color illustration of honey drops. She finds on that page the recipe for "Honey Drops," which, of course, cannot be given here, as the book is copyrighted. Or in April she finds the month's recipes lead off with honey caramels, and there is a two-color illustration of them at the bottom of the page. As an example of the suggestions there are:

February — Honey Taffy, Honey Kisses, Honey Squares; August—Nut-Honey Pats; September—Heavenly Bliss; November—Honey Sponge Candy.

Favorite Kitchen Candy in Holiday Dress—Honey Nougat.

The same calendar method is used in another book, "Cakes and Desserts." Perhaps there are not as many out-and-out honey delicacies suggested here, but the woman who buys such a book in the "five-and-ten" will find some suggestions that perhaps are novel to her. For example:

May — Baked Honey Custards; June—Honey Shortcake; September—Honey-Bran Cookies.

There is a vast army of housewives buying through the 5- and 10-cent stores of the nation, making it an interesting channel for the marketing of honey.

Improving the Looks of Comb Honey with Transparent Wrappers

The effect of wrapping sections of comb honey with cellophane or similar transparent materials is becoming apparent, from the reports which we have received, where sufficient use has been made, in comparison with the old method of displaying the honey in the shipping case, or without protection, in the store show case.

Grocers comment very favorably on the greatly added respect customers show toward the product. One grocer handling honey remarked that "if he couldn't have the wrapped honey he did not want any." The beekeeper objected to wrapping, on the ground that it cost him about a cent more per section and thereby reduced his profit considerably. The grocer countered by saying, "All right, you charge the wrappers to me. I am willing to pay for them, because the honey sells so much better."

Herman Schuessler, Lafayette, Indiana, uses a paraffined paper made up in the form of a bag, in which he puts his section honey. I don't know what the cost of these little bags is compared with the cost of the cellophane wrapper, but presume they would be much less in price. The ideal wrapping, of course, is cellophane, which can be obtained now through the bee supply companies or dealers in these materials, and made up with whatever design the beekeeper wants. Those printed by the supply houses carry the design already stamped on the wrapper.

Bees of Mixed Sex—Gynandromorphs

By H. B. Parks

THE records of hermaphrodite or gynandromorph, bees being found in colonies are very numerous. The bee journals, several scientific publications, and even some medical papers, record the discovery of the oddities of bee life and speculate as to how they came into being and what caused this queer contortion. Nowhere is anything given in the available literature that tells of the life of these poor mixed individuals. From the little that is given, however, one is led to believe that they are quite rare and occur only by accident, one or two to a colony being the greatest number recorded.

At the Texas Apicultural Research Laboratory every season thousands of individual bees are closely examined. The records of this work show many instances of individual variations and, in addition to these, bees which show mixed sex characters are seldom absent from the list of abnormalities. It is interesting to note that cases of malformed legs or wings, the absence of one of the multiple eyes and many other bodily deficiencies are common, but are not a part of the mixture of sex characters. These individuals as a rule are somewhat smaller than the common run of worker bees and resemble the "runt drones" which come from worker eggs. At emergence they seem as active as the other bees on the comb and behave like workers.

No classification can be made of them, as there seems to be no uniformity in the mixture. Every possible gradation between drone and worker is present, and added to this they may also show a longitudinal division, one side having the stripes of the Italian and the other side being a pure color.

In requeening some colonies early in September, 1928, a colony was found that contained a great number of the strange beings. In fact, it seemed that all the young bees, and especially all the emerging brood, were these mixtures. Here was the chance of a lifetime to find out something about their life, but the greatest thing was gone. The queen, the mother of this motly brood, had been in the top story of the hive and, before the peculiar character of her offspring was known, was killed. A number of these individuals were caught and preserved. It was intended to secure a large number of them for future study, but a heavy rain occurred and three days later when the hive could again be opened the fate of the gynandromorphs was apparent. Careful search found only twelve living ones, but on the ground in front of the hive were several handfuls of dead ones.

It looks as if these mixtures are naturally weak and were killed by the workers, as those with any other malformities are, or the colony under the influence of the new queen and the rainy period had killed them as drones are killed under similar circumstances.

The queen which produced these bees was placed in the colony in 1927. In 1928 the hive (two and one-half stories, ten-frame) gave an eighty-pound surplus and at the time of the discovery had a good supply of stores. As all of the emerging brood seemed to be unnatural, it looks as if some accident had happened to the queen. We wonder if similar accidents are not the cause of many tragedies witnessed by the sudden death of a whole colony seemingly without cause?

From the meager notes at hand we can make the following rather definite statement: First, gynandromorphs are common in all colonies, but are few in number; second, as they are never seen excepting as young bees, it is suspected that they are killed by the worker bees; third, malformations are common as well as a mixture of sex characters; fourth, these peculiar individuals may live and become field bees. One specimen on deposit which has the head, thorax and legs of a worker, but the abdomen of a drone (no sting), has pollen masses in the scopæ. Fifth, these bees are more common among the progeny of old queens than young. Texas.

Overheating Honey Intended For Export

A GREAT many complaints are being received from Germany by exporters of honey about the honey being overheated, and in several instances some serious claims have been received, amounting to hundreds of dollars.

Under the German pure food laws, no honey that has been heated, where the diastase has been destroyed or impaired, can be sold in Germany as pure honey, and can only be sold for baking purposes.

These claims have arisen on different kinds of honey, some originating in Idaho, some in the Hawaiian Islands, some in Arizona, and some in the Imperial Valley.

Several arbitrations were held in Germany last spring, with the result that the buyers were awarded by the arbitrators $2.50 per 50 kilos, which means slightly over 2 cents per pound, and the honey disposed of by the buyers for baking purposes.

Since these claims came to our attention we have been investigating and find that many of the beekeepers are now using heating devices in connection with the extracting of honey, and we deem it advisable to say to them that if they continue to use these heating devices they are likely to ruin the market for their honey.

We have been informed that the United States Bureau of Entomology has released a publication to the press warning the beekeepers about heating the honey and telling them of the serious results which might happen.

In one instance, we know of a lot of 279 cases of honey which was shipped to Germany and which was found to be overheated, and the buyer was compelled to sell this honey at a loss of 4 cents per pound. You can see from this how very serious the matter is.

The result of this overheating of honey will be that exporters will refuse to buy honey from producers without a guarantee that it has not ever been subjected to heat at all.

Another specific instance has just arisen covering the sale to Germany of 150 cases of honey, two samples of which were submitted to the buyer for approval. He reported that one sample was overheated and the other satisfactory, and to ship the honey similar to the satisfactory sample. As the honey was all of one lot, the seller replied that it was impossible to separate the honey, because a sample of every single tin—amounting to 300 cans altogether—would have to be analyzed, and you can readily see how impossible this would be from a practical standpoint, and also what an expense it would involve. The result of this transaction was that the sale was cancelled.

The writer was in Germany last summer and held many discussions on this subject with a number of the large Germany buyers, and they are all very much concerned, fearing that their business in American honey will be ruined, and they are just as anxious to have the honey arrive in first-class condition as the exporters are to have it go out that way.

All imports of honey into Germany are examined by inspectors of the Health Department.

Hamilton, Wallace & Bryant,
California.

The Order of the Honeybee

We have been favored by Mr. Mamelle, Secretary of the Central Society of Apiculture of France and member of the Institute of Agronomic Researches, with one of the medals of the ancient "Ordre de la Mouche a Miel" (Order of the Honey Fly), which was created in 1703 by the Duchesse du Maine, Anne-Louise-Benedicte de Bourbon, granddaughter of the great Conde and wife of Louis-Auguste de Bourbon, who was a son of Louis XIV by the Marquise of Montespan and therefore a legitimate Prince of France. The Duchesse du Maine was small and frail, but very ambitious, and the Grand Dictionnaire Larousse reports that she hoped to become Queen of France. That is how she ventured to establish an order of chivalry, to which she gave the name stated above. The medal, which was produced and of which we are told a number of specimens still exist in the collection of historic medals at the Monnaie at Paris, is of silver. On its face it bears a portrait of the Duchesse, surrounded by the following letters: L. BAR. D. SC. D. P. D. L. O. D. L. M. A. M. (Louise baronne de Sceaux Directrice Perpetuelle De L'Ordre De La Mouche a Miel). The reverse of the medal shows a honeybee with visibly protruding sting and a beehive at a distance, with the following Italian reading: "Piccola Si. Ma Fa Pur Gravi Le Ferite" (Little, Yes. But Makes Nevertheless Grave the Wounds).

The name "mouche a miel" was the old French name for the honeybee, now called "Abeille." We do not very often indulge in fancy or historical descriptions, but we believe this was a good opportunity for straying from our custom and that our readers will be pleased to see something about bees in history.

British Beekeeping and American Contrasted

By D. M. Cuthbertson

IN the United States beekeeping is an extensive and important industry. In the British Isles, however, it is only carried on in a small way and can hardly be dignified by the name of an industry at all. At the best it is seldom more than a profitable sideline, and usually is only an interesting hobby. And this is not to be wondered at, the climate here being so uncertain. Only one year in three or four gives a really good honeyflow, or, to put it another way, weather in which the bees can take full advantage of what flow there is. Every few years the weather is so unseasonable that the bees get barely enough to keep themselves and sometimes have to be fed to keep them alive.

Under these conditions it is only natural that capital is not attracted to beekeeping for honey production. The largest apiaries are run by those who keep bees, not primarily for honey production, but as part of their business of supplying bees, queens, hives and appliances to beekeepers in general.

Farmers, small-holders, and country clergymen keep most of the bees in this country, in apiaries ranging from a couple of hives to perhaps fifty. Propertied people with estates in the country usually have from half a dozen to a dozen colonies in their gardens in the same way as they have fruit trees and beds of flowers. Hives are looked upon as part of the furniture of the garden of a country mansion. The bees are recognized as being useful for pollinating the fruit trees, and no honey is so nice to put on the table as that "from our own bees!" It is always **far** better than that sent down from the store in London.

The bees are usually in the care of one of the gardeners, whose ideas of beekeeping are, as a rule, fifty years behind the times. It does not matter if the cost of the honey so produced works out at one dollar per pound or more. So long as it is there, is all that matters.

In one respect British beekeepers are in a favored position as compared with their American colleagues, and that is as regards the prices they can get for their honey. The writer has not much difficulty in disposing of his extracted honey in one-pound glass jars at approximately $4.30 (18/- in English money) per dozen. For good sections, cased, he gets $5.00 (21/-). And this in spite of the fact that every grocery store displays large quantities of foreign and British colonial honey at something like 20 or 24 cents a pound. It is not sentiment that causes this disparity in price, but quality. It may be safely said that for quality—for everything that the word connotes—there is no **better** honey produced in any part of the world than here. The writer does not mean to say that there is no honey to equal it (that would be foolish), but that there is none to beat it. This is probably entirely due to our climate. So far as the writer can make out, honey is at its best when produced in the most inhospitable climates, and steadily deteriorates as the tropics are approached.

It is quite probable that our friends in California, Jamaica, Australia and elsewhere will deny this, but the price that honey fetches in the market is probably as good an indication of its quality, or of how it is appreciated by the public, as can be obtained.

But the fact that Scotch and English honey is of very fine quality and fetches a good price does not compensate the beekeeper for the smallness and uncertainty of his surplus. It is far better to have a large output with a smaller profit than a large profit on a small output. Frequently the crop with us is nil or almost nil, and likewise the profit, for the overhead charges remain the same, whether the bees store much or little honey.

England.

Bees for Pollination

The extent to which bees are used in the orchards of California to secure pollination of the fruit blossoms is indicated by the statement that 85 per cent of the bees in Yuba County are kept for that purpose alone. According to H. A. Crane, in the Bulletin of the Department of Agriculture, only 15 per cent of the Yuba County bees are used for commercial honey production.

Think This Over

"The question in beekeeping formerly was how to make two pounds of honey grow where one grew before. Now the problem is to know what to do with the extra pound—and advertising is the solution of the marketing problem.

"Beekeeping cannot be placed on a "cost plus" basis, nor can production or transportation, but they are determined chiefly by the supply and demand and the impact of world wholesale prices.

"If demand can be increased, one of three results is possible, if other factors remain constant: higher prices for a fixed supply, a larger supply sold without depressing prices, or an increased supply sold at an increased price. We can increase demand by making people want more, and we can make them want more by pointing out the uses and values of the product. While this may be done through lectures, house-to-house calls or radio talks, by far the cheapest way is through magazine and newspaper advertising, through which two or three houses can be reached for one cent. Persistent advertising gradually influences buying and consuming habits; new consumers are won and old ones consume more."—California Beetimes, October.

All of this is good, logical thinking. I want to question one point, however, and that is where our good friend Hartman says, "If the demand can be increased, one of three results is possible—higher prices for a fixed supply, a larger supply sold without depressing prices, or an increased supply sold at an increased price." There are two kinds of food markets. One you might call a fancy market, in which high-priced goods have their place and the demand for which is held up entirely by advertising, and the margin in which is sufficiently great to allow for the cost of the advertising, distribution and merchandising of the product. Fancy packages, extra select food, not the common run, not the staple.

The second market is for those products which find a daily place on the family table and have come to be recognized as more or less essential in the food program of the average home. Here we can list butter, milk, sugar, eggs—staple products, prices for which are fixed and constant, and which practically every distributor of food handles.

Just where do we want honey to come into this picture? Shall it be in the luxury class or the staple class? The one thing which will determine this more than anything else is price. I do not know where the price will be leveled, but one thing is certain: if the price to consumers is higher than the price of comparable sweets which they readily buy on the market, honey will naturally fall into the luxury class. If the price of honey is not too far out of line with other sweets, it can approach the place of a staple product.

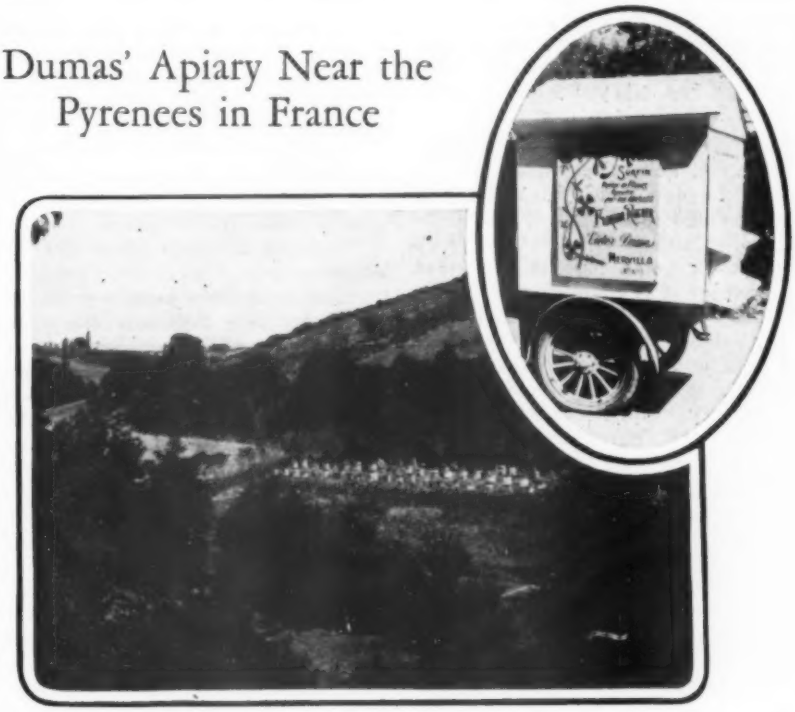
Therefore, I am inclined to believe, if we wish honey to become staple, which, of course is desirable, we face the necessity of determining a price for honey in quantities which will be within reach of the average consumer's pocketbook 365 days of the year. I do not think the five-pound pail at over a dollar nor the glass jar at 35 cents will ever get into this class. At such prices, honey will always remain a luxury. Lower prices than this will have to rule.

We would like an opinion about this. We may be censured for the remarks made here, but they are not made with any desire to depress the market or because we want to buy a quantity of honey at the best price we can get it. Such is not the case. It is a serious phase of honey marketing, and those who are fair-minded and in possession of the facts will see the need of considering just such a question. G. H. Cale.

Honey Tooth Paste

Mr. J. Lemaire, of 1624 Dougall avenue, Windsor, Ontario, would like to get a recipe for making "Honey Tooth Paste." If any of our readers possess such a recipe, will they please forward it to us for publication?

Dumas' Apiary Near the Pyrenees in France



A Ford car with special body is used in selling honey. Good wording on the little sign, "Fine honey. Nectar of flowers gathered by the bees."

Here are two cuts from Mr. V. Dumas, of Castanet, near Toulouse, not far from the Pyrenees in France. One of them represents his main apiary, the other his Ford auto arranged by him for honey sales. We translate the main part of the letter that accompanied the pictures:

"Dear Friend Dadant: We have now been one hundred days without rain (August 24). The old people of the locality do not remember ever having seen such drouth. If the spring had been favorable to a honey crop, it would not be so bad. But we had wind, cold and rain for three consecutive months. The small amount of honey that the bees were able to gather will supply them with winter stores, but I pity those of my colleagues who have extracted what the bees had in July. As for me, I have not yet begun to extract anything. I will let you know about what I may secure, but it will be ridiculously low.

You will find herewith some photos of my apiary and of my Ford, of which I have myself built the woodwork. I have had much success with it since January last in the streets of Toulouse; it helps sales greatly."

V. Dumas.

Grapes, Ignorance and Bees

By Wilbur Sheron

I HAVE delayed the writing of this article because I have been at a loss to find a suitable title. It was the August number of the American Bee Journal that provoked the final decision to adopt the title as it now appears. I have come to look forward with pleasure to the articles of Mrs. Betty Bee and they are among the first to be read on receipt of the Journal. They are doubly interesting, first, as a source of information; second, as a source of entertainment found in the novelty of expression. I wonder if the honey trade in general, and the beekeepers in particular, would not have been further advanced had all the bee men let their slingshots backfire. Be that as it may, as I was musing over the contents of "Peaches, Romance and Honey," I just naturally paraphrased those words to make a title that would fit the story I am about to relate.

I am the only bee man on my edge of the city, being located at the far end of "Lover's Lane," on a dignified looking ridge long known, traditionally, as "Chicken Hill." This ridge comes to a quick halt at the river bank, where it is changed into a precipitous looking bluff rising majestically some forty feet over the river, and it is along the very edge of this bluff that my bees are located. Romance! Yes, there is a real setting for that stuff here at the end of "Lover's Lane" on the scenic crest of "Chicken Hill," with its bit of wildwood on the North Star side and its fringe of civilization back towards the Southern Cross, with the big, blue sky above, the green river below, and the aroma of sweet clover everywhere. Yes, a wonderful setting for romance, but that is not to be the theme of this story.

It all depends on how we treat the children that are now growing up as to how they will treat us after they have reached maturity and we have attained our second childhood in old age. So I give them a feed of honey in season, drop them a penny now and then, help repair their dolls, flippers, slingshots, bicycles and other traps when they get out of fix; give flower seed and bouquets to their mothers; loan tools to their dads, and do everything possible to keep myself in the good grace of everybody, for, of all the people on earth, beekeepers are the ones who can least afford to make and keep enemies. In five years I have experienced only two unpleasant affairs growing out of the natural conflicts arising between bees and neighbors.

The first of this series grew out of the fact that my bees were located on the rear of a resident lot. One fine morning the residenter climbed to the roof of his house to repair a chimney. He was holding on tight with one hand and slinging a trowel of mortar with the other, when along came a bee (of course it was mine) and embraced him just above the upper lip, and after that I found a new location.

The second of the series started one evening as I was leaving the apiary, when one of the neighbor ladies hailed me. Remembering the bit of honey, flower seed, etc., I felt at ease until I was close enough to see red in her eyes, which was there a-plenty.

"I want to tell you (she did not speak a bit sociable) that you and I are going to come together."

"Why?" I asked, still watching the flaming red.

"Because your bees are stinging and destroying my grapes." It was just the season of springtime when grapes were in full bloom.

"Impossible, your vines are diseased or . . . "

"The bees have been working out there for two days and the grapes have fallen off in bunches," she retorted. "They just cover the ground and the bees are flying so thick that it is unsafe to be in the back yard."

We went around to view the wreck and there, sure enough, were the tender grape clusters, withered and scattered everywhere, and a multitude of bees filled the air, roaring out what seemed to be a celebration over the success of their campaign of destruction. I knew the bees were not guilty, and I tried to offer some possible explanation. But in the eyes of those who never think—the ignorant, if you please—only things are real which are visible and on the surface. A defense for the bees was impossible. I set about to find some evidence that would convince. The evidence was soon secured. It is because the solution of this problem was so unusual and out of the ordinary that I thought it worth while to pass the story along.

First, I canvassed the neighborhood to note the condition of other grapevines, and I found them all in first-class order. Vines closer to my apiary than those under discussion were in no way molested by the bees. Next, I appealed to the State Agricultural College. They advanced the theory I had already adopted, that an insect had wrought the damage and the bees were only cleaning up the decayed wreckage. But I wanted to show the insect pest to the lady, so I requested the State Entomologist to send me a nursery inspector to capture the trouble-maker. The situation was getting serious, not because the lady was intimating a poison diet for the bees, but because it was being broadcasted that my bees were destroying her grapes, and if the same pest that was working on the vines should spread to other vines, of course it would be my bees and then I could hunt another location.

It is really interesting to note how men of understanding tackle perplexing problems. The story would be too lengthy were I to relate all the details of the investigation the nursery inspector made, and, besides, I might report it wrong, for it was highly technical. But it was really impressive to watch the progress of that investigation, the comparison of the leaves, the scrutiny of the stems and branches, the dissection of the withered clusters, etc.

It is to be regretted that the lady received no inspiration from this application of intelligence. As the inspector went silently and thoughtfully ahead with his work, she persisted in chattering her petty tirade against the bees; and when he attempted a word of explanation from time to time, she almost invariably interrupted with a line of nonsense that was alien to or entirely beside the matter under investigation. However, there is just one mitigating fact that should be recorded in her favor: She had previously consulted a licensed nursery agent in the neighborhood. He told her that "a few bees were good for fruit, but too many bees would sting and kill fruit." There is no question but what there were too many bees about that grape arbor, which would easily explain her conclusions after she viewed the fallen grape clusters and the barren vines. But just what is in the make-up of people that prevents them from listening to the other side of the story? Just what is the nature of this ignorance and prejudice and bigotry that blinds people to a fair and impartial hearing of the question? As for the statement of the nursery agent, isn't it high time to require of them that they know something about plant and insect life before they are licensed to deal with the public? Many of them are well educated and dependable, but too many of them are just the opposite. Should not this latter class be eliminated?

Now, just what was the trouble in the grape arbor? That arbor is forty or more years old. There is a Concord vine growing on the south end and a wild grape vine on the north end. The two had run together and were densely interwoven. The inspector proved that the wild grape vine is sterile and produces nothing but pollen. The lady admitted it had never produced any fruit. Her husband, early in the spring, had pruned the whole arbor. In some manner—through chance, luck, or whatever you wish to call it—he trimmed away the Concord runners and left the wild grape runners. At least 95 per cent of the blossoms that set on were of the wild grape variety. They produced their pollen, withered and fell to the ground just as they had always done, leaving the arbor practically nude of grapes because 95 per cent of the fruit-bearing Concords had been cut away. The bees were present in unusually great numbers to gather the pollen from the increased quantity of wild grape blossoms. The phenomenon was never noticed before, because there were always Concord grapes enough left to fill the arbor after the others had fallen, and there was not enough of the pollen-bearing wild grape blossoms to attract bees in unusual numbers. Indiana.

New Eating Habits for Old

By Helena L. Williams

Twenty-five years ago it was commonplace for a business man to eat three hearty meals a day, including, perhaps, chops for breakfast, steak for lunch, roast beef for dinner. Also, twelve-course dinners and heaping portions were the ideal of the perfect hostess.

Those were the good old days when waistlines were a merely feminine problem and paunches were an indication of prosperity.

But the day of overstuffed bodies has passed. Nowadays doctors recommend a moderate diet, with meat not more than once a day, and it is not unusual to see men of affairs eating a bowl of milk and crackers for lunch. While children should be encouraged to maintain a weight slightly above the average, for healthy adults past forty, a few pounds under the average or "normal" weight provide the "margin of safety."

The change has come about for several reasons. We have acquired a wholesome dread of overweight. Overweight is useless baggage. It may bring on a high blood pressure for one thing, which in turn may cause a serious heart condition and other ailments. Then, too, surplus weight is like unburnt carbon which clogs the cylinders. We have found that overeating causes mental sluggishness. And in this age of high-pressure business methods, no one can afford to be so handicapped. Moreover, the average business man takes less exercise than he needs, so that his body does not require as much fuel as that of the physically active person.

Nutrition experts agree, however, that many of us do not eat well-balanced meals. In recent years they discovered that leafy green vegetables are of vital importance in the human diet, and it has become a hard task to make the public appreciate this fact. Vegetables such as cabbage, kale, string beans, celery, spinach, beet greens, dandelion greens, turnip greens and watercress are called the "protective foods." They contain the vitamins that are essential for growth and that protect against certain diseases, such as rickets, scurvy and pellagra. Vitamins also help to keep bodily resistance against tuberculosis at par. It is not impossible to have fresh vegetables even on the table of the city family, for with modern transportation and refrigeration they are obtainable the year round.

Starchy foods are also essential, though potatoes, beans, spaghetti, and cereals should not outbalance green vegetables. The so-called "tubers," including carrots, beets, turnips and other root vegetables, should also be included. And fruits are far more valuable than sweets, of which Americans, by the way, eat a vast quantity. Recent figures show that we consume about one hundred pounds of sugar per person per year, or about one-sixth of our daily energy supply. "This," says "Food, Nutrition and Health," "crowds out an equivalent amount of the food which, if used instead of sugar, would supply all the things in which sugar is lacking. Sugar contains no structural materials, no vitamins, and no mineral elements."

Public education in a healthful diet is one of the activities of the National Tuberculosis Association and its affiliated organizations which are conducting the twenty-first Christmas seal sale in December.

John Nemmers Willing Instructor for Many Iowa Beekeepers

We are sorry to learn of the death of Rev. John Nemmers, of Gilbertville, Iowa. Father Nemmers was born at St. Donatus, Jackson County, Iowa, in 1847, was ordained to the priesthood on December 19, 1875, and assigned to the Gilbertville parish at that early day, where he worked unceasingly and unselfishly towards the interest of his community. About the only recreation Father Nemmers ever took was to hunt, or fish, and keep bees.

Beekeeping was his hobby. When any of his friends came to his home he would be quite apt to take them to his bee yard, and it was easy to see how he enjoyed being around the busy little insects, and to talk about them. He had quite a number of colonies.

In addition to many other duties, Father Nemmers taught school, beginning first in an old stone church building with a membership of perhaps twenty-five students. The school has grown now until there are 180 registered pupils, in charge of the Sisters of Notre Dame of Milwaukee, with courses extending beyond the eighth grade.

In 1888 a new church became a necessity. The parishioners lacking funds, Father Nemmers decided to save every possible penny of expense. He unearthed a bed of clay on the church grounds and with the aid of a few helpers made every brick that went to make up the building. Over 800,000 bricks were made by Father Nemmers, who worked night and day to keep ahead of the builders. He located a lime deposit and prepared eleven kilns and worked day and night to accomplish the job.

Others wished bricks and lime for building purposes, and to reduce the cost of the church this priest made the two commodities in quantities to meet the demand from outside, and in this way reduced the cost of the building considerably.

Nick Klein, Iowa.

Honey Improves Paste

In making up paste, A. G. Woodman, of Grand Rapids, Michigan, used four ounces of cold-water paste-powder and two ounces of honey, mixed with the required amount of water. This paste was made up in August and put in glass jars with covers screwed down. At the same time he made another quart of paste in the same way, without honey.

"A month or so later the cans were opened. The one in which the honey had been used was sweet, free from odor and in first-class condition. The one without honey was sour and smelled so badly it was impossible to use it.

"Apparently the honey had a preserving effect. We were surprised, as we have known for many years that diluted honey soured very easily. This experience leads us to believe that the honey acted as a preservative. We believe this information should be of considerable value."

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

WHAT TO DO FOR LATE QUEENLESSNESS

In October I lost a queenbee by accident. I found some queen-cells in another hive and gave them to the queenless hive (other queen had been caged, hence the cells in hive No. 2). Cells accepted in hive No. 1, but now I notice drones still alive in that hive. To me this indicates a lack of queen.

1. Is this correct and certain?
2. Could I run a queen in at entrance during winter?
3. If not advisable, how soon should that hive be requeened? Bees are now packed in winter cases. N. Y.

P. S.—1. Would the offspring of a pure Caucasian queen mated to an Italian drone be gentle to a greater degree than pure Italian?

2. Would the opposite cross be better?
3. How are the Caucasians in honey gathering? Disease resistance?
4. Where can I get good ones?

Answers—It is probable, but not absolutely certain, that there is no queen in the hive when there are drones in it in November. It might be that the drones are not numerous enough for the queen to have met with one in the air. In that case, the queen might be there and still a virgin. She would be too old to mate.

2. Yes, you might run in a queen during the winter. But it would be quite risky for you to have a queen shipped to you in cold weather.

3. I would recommend that you wait till early spring, then examine the hive some warm day, and if there is no queen, order one sent you as soon as it will be safe to send queens by mail.

P. S.—1. No, I do not think that the Caucasian queen mated to an Italian drone would be gentler than either of the purely mated queens. But this is only a guess, I don't know.

2. There is no reason why the opposite cross should be either better or worse.

3. The Caucasians are both good honey gatherers and as resistant to disease as other races. But I do not know of a single race that can resist foulbrood.

4. You can get good Caucasians by addressing Professor Gorbatchef, Minister of Agriculture, Sericulture and Apiculture, Tiflis, Georgia, Russia; but you will need to order them through the United States Apiculturist at Washington, D. C., since there is a law forbidding the importation of foreign bees into the U. S. Write to James I. Hambleton, Bureau of Entomology, Washington, and get into an understanding with him.

HOW TO MAKE A PACKING CASE

1. I am planning on making some packed rims to put over my bees for winter, and would like to get your advice as to the best way of making this packing case. The way I have the case planned there will be no packing at the bottom, but it will be banked around with dirt and will be painted on top with asphalt paint so as to be practically air tight. The sides will have about four inches of packing and the top eight inches, with a porous covering over the bees so as to absorb the moisture. I am planning on making these only for my twelve colonies in square hives with top entrance.

2. What I cannot decide is whether to make this case for two or four colonies. For two colonies the hive entrances will face south, but for the four-colony case one will have to face east and one west, besides the two facing south, as the hives are square. Do you think the added warmth of the two extra colonies in the four-colony case will overbalance the disadvantage of the one facing east, especially?

3. Also, how about making these cases with top entrance? I have been told the top entrance will let all the heat escape, but I do not think this is so. I had in mind one or two half-inch holes for each colony for entrance. As the bees are permanently located in groves of trees (this is necessary to enable the bees to get in their top entrances, as the wind blows so hard), the snow drifts quite badly, and a top entrance would enable the bees to fly when otherwise they might be snowed in.

4. Do you think asphalt paint on the bottom of this case would be distasteful to the bees? The hives are to set on this bottom the year around, and so I want to make it last as long as possible. I think asphalt paint would be better than creosote for the inside, but I am planning on creosoting the planks the floor is nailed to. The shavings in the packed rim for the top will be loose, so I can dry them during the summer, and with the top entrance they should not get so wet. There will need to be about one-eighth-inch clearance between the rim and the hive to take care of warped or crooked cases and hives, so it will not be as snug as poured-in packing.

The top-entrance hives are run for extracted honey only, and the hive bodies are 7 9/16 inches deep. I will winter two hive bodies in this case. SOUTH DAKOTA.

Answers—1. Your plan for winter cases is good and I do not see how I could improve it.

2. I would much rather put only two colonies together, as the facing south is, to my mind, much better than facing in other directions. Then there is always more chance of drifting, with four colonies together than with only two.

3. Top entrances have never looked good to me. We used some top entrances a long time ago, but we had also bottom entrances in the same hives. Hives snowed in have no terrors for me, unless they are sealed in by ice. There is nearly always a good chance for air.

4. Asphalt paint and creosote will not be objectionable to colonies if the paint is not fresh. It should not be used about the hives until it has had a chance to dry. So I would not paint any part of the bottoms or packing boxes until spring or summer, when there is plenty of ventilation or when you can dry these parts before using them about the hives.

STANDARD EQUIPMENT FOR M. D. HIVES

1. Most of my hives are standard, but I have just bought a M. D. hive and I want to know if you can suggest a way that I can use the standard hive as a super on the M. D. hive.

2. In your March issue I see that Mr. Eby says that he uses Hoffman frames for supers. Would it work to use an all-wire excluder? SOUTH DAKOTA.

Answers—1. The standard Langstroth will do all right on top of an M. D. hive by closing the extra space with slats. We show a picture of this in "The Dadant System of Beekeeping." One reason why we have not pushed the D. hive stronger is that so many people are using the Langstroth and they are accustomed to its management but we get much better results with the larger brood chamber. The evidence that most people find the Langstroth hive too small is that they now use what they call a "food chamber" above for spring and sometimes for winter.

2. You can use all-wire excluder, and with large brood chambers the excluder is rarely needed. We don't believe in them, as they make it more difficult for the bees to ventilate the hive in hot weather. As to Hoffman frames, I do not recommend them for supers, because they are usually spaced much farther than the brood chamber frames and also because the shoulder makes it more difficult to uncap the cells near the edge.

ADVANTAGE OF REVERSIBLE FRAME

Would it be any advantage to have a reversible frame to fit Langstroth hives? AUSTRALIA.

Answer—There was a time when such a question might have been answered in the affirmative, for there were a number of inventions of reversible movable frame hives. Mr. James Heddon, who lived at Dowagiac, Michigan, had invented a reversible hive and had convinced a great many people of its advantages, but I doubt whether there are fifty beekeepers left who use reversible hives. The only advantage of inverting the combs lies in placing the honey down near the entrance, where the bees do not consider it safe from robbers; so they remove it to another part of the hive and usually it must go to the supers. In this way the bees put a great deal of the honey that they need in the brood chamber into the supers. This practice has impoverished the bees to such an extent that the reversing beekeepers lost their bees. That explains why reversible hives are not desired.

Reversing with box-hives, or skeps, in France, was called "culbutage." It caused the colonies thus treated to die heavily, so that the practice was stopped. It may be still found mentioned in old bee magazines.

HOW MUCH LAND FOR 200 COLONIES OF BEES

I am contemplating buying a place in the country within the next few days, so I would like to know how many acres would be necessary to have 150 to 200 colonies. Of course I will not not start with this large number, but will start with perhaps twenty-five, but would like a place large enough to support a large number of colonies later on. I do not care to invest so much in a farm; would like to get by with ten to twenty acres, if you think this will be enough. ILLINOIS.

Answer—It matters not at all how much land you own in the country, because your bees will not confine themselves to your land but will go as far as they like, a mile or two. Just so you have enough room to establish your apiary, say a half acre of land, you can run up your apiary to as much as you like.

In order to have a good location, you should select a spot where there are some orchards and plenty of cultivated land. Sweet clover is a good crop for bees, and you may be able to induce your neighboring farmers to sow some of it to enrich their soil. Pastures are good, too, because they usually contain plenty of white clover. But about one hundred colonies are as many as you should keep in one place.

TO CLEAN PROPOLIS FROM EXCLUDERS

Would you kindly tell me the best way of cleaning queen excluders from gum and burr-combs? I do not remember ever seeing anything on the subject anywhere. OREGON.

Answer—As we never use queen excluders, we have no experience on the clean-

ing of them from propolis and burr-combs. But if they are made of all metal, you may clean them with a gasoline torch. If they are partly of wood, I would suggest dipping them in wood alcohol. By laying the excluder in a pan, it would not take much wood alcohol to cover it and a number of them could be cleaned in turn. Turpentine is cheaper and would also dissolve the gum, but it would leave an odor which would stay longer and might be objectionable to the bees.

Dr. Miller was, like us, opposed to queen excluders. He wrote:

"With full sheets of foundation in sections and frames not too shallow in the brood chamber, the queen so seldom makes trouble in the supers that I never use an excluder to keep her down."

DISTANCE BETWEEN BEEHIVES AND PUBLIC HIGHWAY

Will you kindly give me some information in regard to beehives? I should like to know especially whether or not there is a law regulating the distance between beehives and the public highway.

ILLINOIS.

Answer—I do not believe that there is any State law concerning the distance to be maintained between hives of bees and the street or between them and the land of neighbors.

But, of course, if the bees were located too close to the street and caused damage by stinging people or horses, the owner of them could be held liable for the damage done.

It is therefore best not to locate hives of bees too close to the public thoroughfare or to the houses of neighbors. Usually a high board fence or a thick hedge is sufficient to isolate them. Besides, bees may be kept from getting angry by proper management.

STONE CROCKS FOR HONEY

Would large (20-gallon) stone crocks which have been used for salting meat be O K for keeping honey in if they are cleaned well and kept covered?

NORTH DAKOTA.

Answer—Yes, large stone crocks will do to keep honey, if you keep them well covered and in a warm room. In a cold room they would help gather moisture in the honey.

When we began to keep bees, in the sixties of the past century, we used altogether five-and ten-gallon jars to keep our honey until we put it up in small retail packages. We had no idea then that we would harvest hundreds of barrels later, as we did. Most people keep their honey in big tanks, but we rarely did that. Nowadays the sixty-pound can is the principal holder, but the honey must be well settled when it is put up in that shape.

RIPENING HONEY IN THE SUN

I have extracted honey and placed it in glass jars holding six gallons, or 50 pounds or more. I placed these jars in the sun on a platform for three days, during the day, taking them in at night. The heat of the platform, tested by a thermometer, was between 130 and 135 degrees. Is that heat sufficient to ripen the honey and to keep it from granulating?

Answer—We have never tried putting honey in glass jars in the sun to ripen it, could not tell whether the temperature you mention would be sufficient to keep the honey from granulating, but I believe that it is sufficient to ripen it fully. I am also somewhat of the opinion that it would help prevent granulation.

MOISTURE IN HONEY

Will you please write me how to take or evaporate the excess moisture out of unripe honey before it is heated?

ILLINOIS.

Answer—If the bees have not evaporated the honey sufficiently it should be kept in a very warm room until it is thick enough. If at the end of a month or two it is still too thin, there is no way left except to heat it to 140 degrees for awhile. Much of the moisture will evaporate then. But it will not granulate, even though it may have partially granulated before it was heated.

I am afraid that there is much more unripe honey in the country than usual owing to the very moist weather we have had from time to time. Ordinarily the bees evaporate it quite thoroughly.

SURPLUS OF POLLEN IN COMBS

Will you kindly answer through the Journal how it is possible to get old pollen out of combs? I have some very fine combs made from wired foundation that are less than a year old, and some of them are so full of pollen that they are apparently useless. Is there any way of getting it out without destroying the comb?

IOWA.

Answer—I have never removed pollen out of combs, because, unless it is mouldy or too much dried, the bees can use it in spring.

But I understand that some people get old pollen out of combs by soaking the combs for a few hours, then shaking the pollen out of them. I do not know just how successful that method is.

INDUCING BEES TO USE SALVAGED COMBS

I have several drawn combs that went through the flood. I soaked them for several days in water and they seem to be pretty clean, but the bees refuse to work on them. What can I do to clean these combs? I don't like to melt them up for wax—they are too good.

ILLINOIS.

Answer.—If you put each of these combs between two combs of brood in populous colonies and th bees will not occupy them, I cannot imagine any way of compelling them to use them.

But I am under the impression that your bees are not harvesting any honey, and it is more difficult to get them to repair combs at such a time.

Bees Invade Girls' School and Sting Pupils

Bees were buzzing, children yelling, policemen were running, the fire engine screeching, and everything was in confusion at St. Agnes Episcopal School for Girls, near Alexandria, yesterday afternoon as a swarm of bees invaded the institution.

Swollen faces and hands bore mute testimony to the havoc the bees had wrought.

The students were sitting at their desks listening attentively to their teacher, who was explaining a difficult geometry problem. Suddenly the demonstrator quivered. The class looked up, but let the motion pass without comment. Again the teacher quivered, more violently this time. Jerking suspiciously around, she glared at the class. Then she glanced at the window.

It was black with an incoming horde of bees. With one yell and one leap she had cleared the room. The class was at her heels, but before they could get out, destruction had been wrought. Howls resounded in the staid old building. Neighbors, alarmed, ran toward the scene.

Reaching it they stared amazedly at the curious antics of those pouring from the building. Clutching various parts of their anatomy, the girls emerged, shrieking, groaning and cutting fantistic capers.

The fire engine came and right behind it a bunch of policemen. Finally things quieted down and someone was trying to give a coherent account of the incident. He was interrupted by a shriek from the cellar of the building. The door was burst open and out dashed the janitor, his face stung in a dozen places. He had been locked in the cellar accidentally and had to pry the door open with an iron bar, while the bees beset him viciously.

Doctors came and, after administering to the many hurts, advised the dean to close the school for the day. — Washington (D. C.) Herald, October 16.

Says Bees Are Overpraised

Here is something unusual — an out-and-out fling at the bee in this day when so many articles about wonders of the bee are being printed for laymen. The Bookman tells of a new book, "Birds and Beasts of the Greek Anthology," written by Norman Douglas, issued privately by him in Florence and limited to an edition of five hundred numbered and signed copies selling at $6.00 each. The Bookman calls it a sizable and scholarly volume and notes that Mr. Douglas is not altogether pleased with "the bee, maker of honey and symbol of prudential virtues." As proof of that the writer quotes Mr. Douglas:

"There are fifty or more references in the 'Anthology' to the bee and its products—no disproportionate number, when one considers that, from time immemorial, men have held in veneration this cantankerous and fussy insect, which, by dint of specializing in communistic habits, has lost every shred of individuality. . . . They (the ancients) thought mighty well of the bee's industry and its orderly habits, and drew many edifying parables therefrom, forgetful of the fact that it loafs nearly half the year and is orderly only because it lacks such independence of character and imagination as even a louse possesses."

On the Road With the Bees

By Glen V. Mills

THE transfer of the title of ownership of our hives of bees at our Hyde Park home near Muskogee, Oklahoma, did not take away our interest in these winged workers, for only a few hours had passed before we were in the queen breeding yard of J. F. Diemer at Liberty, Missouri, a yard devoted entirely to queen-rearing, with about a thousand nuclei.

Although Mr. Diemer and his son have outapiaries for honey production, we did not visit them, but rather attended a meeting of the Heart of America Beekeepers' Association. A collection of enthusiastic beekeepers, where each man and woman present had something worth while to say. Especially did their Secretary, who had just returned from a trip to the Entomological Department and a description of the Government's work to promote apiculture.

These meetings are held monthly at the apiary of some member beekeeper near Kansas City. Nearly two hundred were present at the June meeting at Mr. Diemer's.

A day's hot and dusty journey and a short trip along the Mississippi's west bank and we were at the beautiful home of C. P. Dadant, overlooking the Keokuk dam and the expanse of water above its falls. The reason for our stop, besides paying our respects to Mr. Dadant, was to see the workings of a foundation factory. Everything around the plant at Hamilton is of great interest. As every beekeeper knows, the invention of foundation and the extractor, following Langstroth's movable frame hive, made commercial beekeeping possible.

Everywhere along our route we saw sweet clover, along highways and railroad right-of-ways its white, fragrant bloom so like the linen from Irish looms spread upon Erin's green. It grew everywhere on waste ground, except along one section near the state line between Missouri and Iowa, where the section foreman had run a mowing machine over the length and breadth of his six-mile charge and turned the sheet of white into unsightly brown stems awaiting the spark of some passing locomotive to remove the evidence of his wantonness. Artie Clare and I both wondered if this brainless section boss had had some spite against the adjoining owners, who perhaps might have had some bees.

After a week of travel, Artie Clare and I were with bees under far different conditions, in the pine barriers of Michigan with its short honey-flow, where the air is saturated with the scent of the raspberry, the basswood, milkweed, and sweet clover.

It was in Cheboygan, overlooking the Straits of Mackinac, at the bee yard of Elmer Delmarter, that we first partook of the hospitality of the northern Michigan beekeepers and first tasted the mild-flavored blend of their water-white honey.

Although Mr. Delmarter holds a clerkship in the Cheboygan postoffice, he still has time to care for nearly one hundred colonies and their annual product of about two hundred pounds per colony. Mr. Delmarter winters his bees outdoors, using sawdust packing, while all other beekeepers we visited winter in cellars.

At Boyne City we visited the apiary of L. A. McIntyre, with over two hundred colonies. This location meant much to me. The hives were set among the trees on the bank of the Boyne River, where as a boy, over fifty years ago, I fished for the elusive speckled trout, and, where the stream had widened into lake-like form, I used to skate in winter. It was sacred ground, for there my father and mother rest in their everlasting sleep.

In this scene of youthful joys and sorrows, I found a sentimental beekeeper who had painted his hives a light green, blending with the leaves of the maples and beeches, the hemlocks and balsams arching over them. He gave a practical reason for his color scheme, in that green absorbs more of the sun's rays than white, giving increased warmth in early spring, so necessary in that climate, which is almost always cool.

. It was with regret that we were unable to visit the Jackway and Bartlett apiaries near Jordan, but I walked about five miles to one of the Hubbell Brothers outyards, at Boyne Falls, over a road which had replaced the blazed trails through virgin forests, where in the early seventies I picked the beautiful woodland flowers of spring, summer and autumn. Like Mr. McIntyre, these genial beekeepers devote their entire time to their several apiaries, containing over four hundred colonies, and are amply repaid, for in mid-July their colonies were filling hives which resembled big city sky-scrapers and would average nearly one hundred and fifty pounds each. Scale hives averaged over fifteen pounds per day during the second week in July, but during the third week fell below five pounds daily, on account of the cold, wet period.

Halfway between Boyne Falls and Cheboygan, at Pellston, are located the three apiaries of the greatest beekeeping woman of Michigan, Mrs. J. D. Robinson, who, when her husband's other interests grew to a point where he had to give up beekeeping, took them over with a zest and a zeal unexcelled. One of her yards is devoted largely to comb honey, and produces from fifty to seventy pounds of fancy sections and twenty to forty pounds of extracted honey per colony.

Mrs. Robinson uses 4x5 plain sections with fences, putting a super comb at each side to draw the bees up. She is breeding a strain with comb honey tendencies. She is systematic and scientific, and puts her product on the market, commanding the top price. Her motto is "Fancy."

Artie Clare and I worked one whole day in her yard, with eyes and ears open, rewarded by both pleasure and knowledge. It was here we first saw bees caught in the milkweed bloom and first heard of hives struck by lightning and supposed hay fever contracted from pollen in the hive. Stories of interest to keepers of bees.

When we crossed the gangplank of our steamer at Mackinac Island, enroute to Detroit and Cleveland, on our way to Ohio, we carried pleasant memories of newly made friends and their bees in the far North.

Cooperative Carload of Honey from Utah to Carolina

Comb honey producers of the vicinity of Spanish Fork, Utah, shipped to Jonesville, North Carolina, a carload, 1488 cases, of fancy and first-class comb honey. The shipment was made by Arthur and Albert Stewart and Lew Jones. Selling with them were Rev. Theodore Lee and a number of small producers. The honey brought a fair price.

The honey crop was far below average in quantity this year, but of excellent quality. G. P.

Large Hives Best

Momence, Ill., Oct, 12, 1928.
American Bee Journal,
Hamilton, Ill.:

I have some hives of my own making that hold fifteen frames of standard size, also some ten-frame hives and a few eight-frame hives. My largest producers have been in the largest hives each year. Last year my fifteen-frame hives averaged five and one-half cases of comb honey; the ten-frame hives three and one-half cases, and the eight-frame hives two and one-half cases.

James M. Crosby.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

The Mid-West Show

The Mid-West Horticultural Exposition at Cedar Rapids, November 14 to 17 set a high standard which will be difficult to surpass. Probably no show ever held on the American continent was more complete in this field. The display of flowers which occupied the center of the big auditorium attracted much comment on the part of the visitors. Roses, carnations, chrysanthemums and other seasonable flowers were displayed in great profusion. Various exhibits showing the use of flowers for table decorations, wedding bouquets, etc., provided interesting rivalry on the part of the florists contending for the prizes.

The show of fruit was splendid and widely separated regions were represented. Vegetables, nuts and other horticultural products were displayed in great quantity.

The beekeepers offered a showing quite equal to that in other departments, and the honey display was the center of much interest. There was keen disappointment in one respect, however—the lack of interest shown by beekeepers of other states. The Apiary Department has offered prizes open to the entire United States and Canada in an attempt to provide a honey show of national extent. With few exceptions the entries were from Iowa. A few small exhibits were brought from other states, but the quantity was hardly sufficient to justify the management in making further attempt to provide a general honey show. It is too soon to tell what the plans for future shows will be, but there was general talk to the effect of making it purely an Iowa show in future. The show has been put on at enormous expense, and if there is no interest on the part of the outsiders the management can hardly be blamed for discontinuing the effort.

Essex County Beekeepers' Exhibit at the North Jersey Fair

The Essex County Beekeepers' Association was organized seven years ago, but only the past two years has seen very much activity shown by the members. In these two years the membership has been increased over 400 per cent and now stands at eighty-five active members. Besides the regular meetings, which are held at the Newark city hall the first Thursday of every month at 8:15 p. m., the association has held several field meetings, placed a very fine exhibit of beekeeping in the Newark public library, and a booth in the North Jersey Fair, held at Singac, N. J., for the past two years.

As an appeal to the general public to further the use of honey, two exhibits were used. One consisted of a waffle iron with a dish of waffles and a pitcher of honey, while the other consisted of a plate of biscuits with a glass of milk and a plate of comb honey.

A few accessories used in beekeeping were also shown, along with an observation hive of Italian bees and one of Carniolans. The general color scheme of the booth was deep yellow and the whole booth was brililantly illuminated by a large floodlight.

The booth attracted a great deal of attention and we believe we were well paid for the amount of work required to establish such a booth.

K. N. Francisco.

Iowa Convention

The seventeenth annual convention of the Iowa Beekeepers' Association was held at Cedar Rapids, November 15 and 16, in connection with the Mid-West Horticultural Exposition. At the same time the meetings of the various affiliated societies were held. Professor Francis Jager, of Minnesota, was present to judge the apiary products at the show and gave a talk on "Adaptability of Races of Bees to Locality."

Officers elected are as follows: President, Noah Williamson; Vice-President, J. G. Jesup; Secretary, F. B. Paddock; Directors, E. G. Brown, G. H. Ohmert, Harry A. Pease and A. F. Karsten.

Manitoba Short Course

The seventh annual winter short course has been announced by the University of Manitoba. It will be held at the Agricultural College at Winnipeg from January 21 to February 1, 1929.

Room and board at the college dormitory are available for $13 for the full course. The registration fee is $5 per person. The Manitoba short course is well attended, and those who have been students in former years are now producing honey in

Golden Northern Bred Queens

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for high-grade three-banded Italian bees and queens. 2-lb. package with select untested queen, $4.50; discount on quantity. Select untested, $1.00, $10.00 per dozen; select tested queen, $1.50. Inspector's certificate with each.

J. ALLEN, Catherine, Alabama

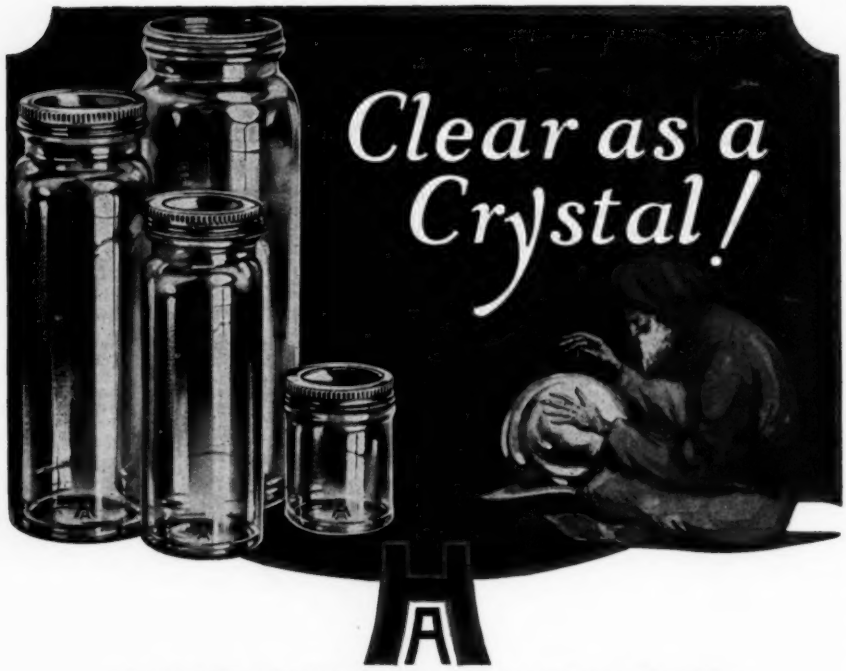
THE HONEYBEE

Written originally by L. L. Langstroth, rewritten by Charles Dadant and C. P. Dadant, is now in its twenty-second edition. Successful beekeepers use this book as an aid in their daily problems. The teachings of Langstroth and the experiences of the Dadants compiled in this book make it a volume of constant reference.

Price $2.50

American Bee Journal

Hamilton, Illinois



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will sell your honey

Made of Clear Glass they give that increased sales value to your honey. No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern and strength in Construction. A trial will convince you!

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WORKING YOUR WAX INTO FOUNDATION FOR YOU FOR CASH AND DITTMER'S NON-SAG BROOD FOUNDATION

We are now able to furnish a Non-Sag Brood Foundation that will give absolute satisfaction. Our MR. E. H. HANSELMAN has for several years been testing and experimenting along this line, and the result has exceeded our most sanguine expectations. Bees take to it like ducks to water, in preference to other makes, in all cases where it was used side by side with other makes of foundation. NOW IS THE TIME to send us your wax to work for you for next season. Write us for samples and prices, and we will tell you more about it.

We can also furnish you THE BEST HIVES AND SECTIONS MADE IN WISCONSIN, at best prices, in any quantity. We furnish a full line of supplies. Write us for price list.

GUS DITTMER COMPANY, Augusta, Wis.

large amounts. Those interested can secure programs and detailed information by addressing Prof. A. V. Mitchener, College of Agriculture, Winnipeg.

Kansas Beekeepers Give Up Own Meeting in Favor of League Convention

The beekeepers' program during Farm and Home Week at the Kansas State Agricultural College will be abandoned this year in order that many of the beekeepers may attend the American Honey Producers' League convention at Sioux City, Iowa, on February 7, 8 and 9, 1929.

R. L. Parker, State Apiarist.

Michigan Convention

The Michigan Beekeepers' Association will hold its winter meeting in the social hall of the W. K. Kellogg Company, Battle Creek, December 18-19. Beekeepers everywhere are cordially invited to join us in showing our appreciation of the fine things W. K. Kellogg has done for the beekeeping industry in advertising honey throughout the country.

Michigan Honey Show

Students of Michigan State College staged a honey show at the armory on November 9, 10 and 11. As a part of the horticultural and flower show it appeared under favorable conditions. Liberal prizes were donated by leading manufacturers and distributors of beekeepers' supplies.

California Convention

We have received an announcement of the annual convention of the California State Beekeepers' Association, to be held at Modesto, December 5, 6 and 7. A good program is promised.

New Zealand Honey Production Declared Record

The New Zealand honey season of 1927-28 was the best on record for many years past, all districts producing good crops, according to information forwarded the Department of Commerce by American Trade Commissioner Julian B. Foster, Wellington.

New Zealand exports of honey have already this year reached 968,800 pounds, valued at $135,000. In 1924 the output was 1,025,584 pounds at $118,942; 1925, 1,213,632 pounds at $147,552; 1926, 1,766,240 at $251,422; and 1927, 1,184,960 pounds at $168,588.

American Honey in Germany

The Bureau of Agricultural Economics of the U. S. Department of Agriculture has recently issued a bulletin on the outlook for American honey in Germany. It is reported that the poorest honey crop in several decades is expected in the important honey producing sections of northern Germany this year. In fact, many apiarists have given up their beekeeping and the great diminution in number of colonies undoubtedly is going to affect the honey production for a year or two succeeding, at least.

Germany has imported in the first seven months of 1928, 11,489,000 pounds of honey as compared with 8,575,000 pounds during the corresponding period last year.

There was a tendency on the part of German apiarists to circulate rumors to the effect that the quality of American honey was impure and not salable. American consuls, however, as well as importers of honey in Germany, have overcome this.

Numerous exporters from the United States are now shipping considerable quantities of honey into Germany periodically, and the wonderful efforts of our own Bee Culture Laboratory at Washington, in cooperation with our Department of Commerce and the Consular Department, is undoubtedly having a great effect on honey sales.

The United States, Cuba and Central American countries furnish a large majority of the honey consumed in Germany.

Louisiana Beekeepers to Market Honey Cooperatively

At the Louisiana State Beekeepers' Association meeting in July, it was plainly evident that the most important point to consider in Louisiana now, with the Federal laboratory established at Baton Rouge working on every phase of breeding and package business, was the marketing of honey. And the new officials were elected pledged to this purpose.

A committee consisting of F. J. Whitehead, Port Allen, Chairman; O. Z. Overbey, Leonville; Owen Walters, Gibson; W. B. Sexton, Rosedale, and Walter Kelley, of the Gulf Coast Bee Company, Houma, was appointed to consider honey blending, packing and selling.

After a thorough discussion, a blending plant for Louisiana honey was located in New Orleans.

The main points stressed to members by the committee were that honey will have to be thoroughly ripened beyond danger of fermentation, uniformly packed, and shipped strictly in carload lots.

Pellett's Six Books

Bees -- Beekeeping -- Nature Study

Our readers are all acquainted with Frank C. Pellett who for many years has been field editor of the American Bee Journal. Primarily a nature lover, Mr. Pellett in his books, combines nature study with bees and a human interest which should make his writings interesting to all beekeepers.

His books are written along three different lines as follows:

SPECIAL BEE BOOKS

American Honey Plants—Covers the whole realm of the honey plants of this continent. 400 pages 200 illustrations, cloth, Postpaid $3.00

Practical Queen Rearing—Gives the best of all good methods of queen rearing. Short, easily applied in practice. Cloth. 100 pages, illustrated. Postpaid price $1.00

GENERAL BEE BOOKS

Beginners Bee Book—Just what its name implies. Cloth, illustrated. Postpaid $1.50

Productive Beekeeping—A general textbook. Covers all phases of bee work. Cloth, 325 pages, 126 illustrations. Postpaid $3.00

NATURE BOOKS

Our Backdoor Neighbors—Charming, true life description of animals, whose secrets the author has shared. Cloth, 210 pages. Well illustrated with original photographs. Postpaid .. $1.50

Birds of the Wild—Just off the press. Delightful reading. Inspires one to bird study, and a desire to help our feathered friends. Cloth, well illustrated —a beautiful gift. Postpaid $1.75

Send your orders to

AMERICAN BEE JOURNAL
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First Beekeeper—"I always extract all my honey the same day as I take it off, even if it takes me until one o'clock in the morning."

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Made in two sizes—28 and 48 combs capacity

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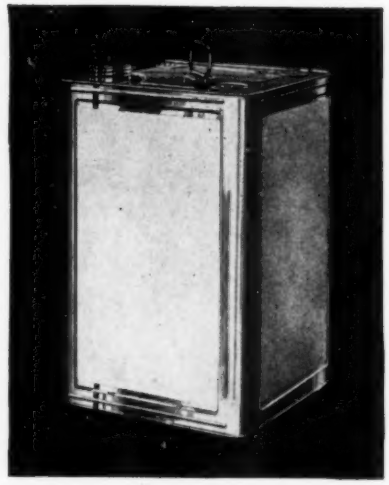

Today's Big Value in Honey Containers

THE Wheeling five-gallon or 60 lb. Square Can is one of the most popular honey containers on the market today. Top and bottom are double seamed and soldered, making a leak-proof container of exceptional strength. Furnished with 1¾ in., 2 in. and 2¾ in. screw cap with cork or paraffined pulp-board liners in either 107 lb. or 135 lb. tinplate.

We are also in position to furnish all sizes of friction top honey and syrup cans. Let us quote prices on your requirements.

Wheeling
Can Company
Wheeling, West Virginia

Crop and Market Report

Compiled by M. G. Dadant

For our December crop and market report we asked reporters to answer the following questions:

1. How much of the 1928 crop is out of producers' hands?
2. How is honey selling locally?
3. Any changes in prices since 1928?
4. Do you anticipate any difficulty in disposing of 1928 crop without price reductions?

CROP MOVEMENT

Conditions seem to be far better than at this time last year concerning the movement of the crop out of the producers' hands. This is especially noticeable in the central area, where the honey crop was so large last year. The New England States report about 60 per cent of the crop sold, and New York 75 per cent. In the Atlantic seaport states the amount out of the producers' hands will range in the neighborhood of 50 per cent, except in Florida, where the crop has been exceptionally large and only 25 per cent has moved.

In the central states, approximately 60 per cent of the crop is out of the producers' hands, and in the plains area, except perhaps South Dakota, the percentage will run nearly 75 per cent.

In the intermountain area 50 per cent of the crop is now sold and the percentage runs as high as 75 to 80 per cent in some states.

Arizona and New Mexico are well cleaned up on honey and California is practically sold out.

All in all, we believe that at least 60 per cent of the total crop has moved already.

HONEY SALES

Very few instances report honey sales as behind a year ago. Some of these are Florida, which reports 75 per cent; Louisiana, 75 per cent; Indiana, 90 per cent, and Nevada, 75 per cent.

Practically all other states report sales equal to a year ago, with some states reporting far better demand than was experienced in 1927.

HONEY PRICES

We know of very little change in prices over last year, except that there is an appreciable tendency to hold prices a little more stiffly than in 1927. Georgia and Florida report prices from one cent to two cents lower than a year ago. In Texas the prices are perhaps a little lower, and one Nevada producer reports being offered 6½ cents for his carload of white honey, whereas he received 7 cents readily last year.

In the plains area we believe that in general the price has been about a half cent higher than it was in 1927, and the same applies in many parts of the intermountain territory, where the shippers were acquainted with true conditions.

One Idaho reporter states that he sold his crop at one-half cent lower than last year.

Perhaps the difficulty with some beekeepers is that they have been heating their honey before shipping. This is not so objectionable in honey which is consumed at home, but in exporting to Germany it is invaluable to have the shipments made of honey which has not been heated. In fact, a great many shipments have been turned back because the honey has been heated and in this way lost its diastase.

DISPOSITION OF CROP

There seems to be very little cause for anxiety for the ultimate disposition of the 1928 crop before the 1929 season arrives. Outside of southern Florida, which has had a very heavy crop, and one or two reports in the West as well as a few in Louisiana, we know of no reporters who are optimistic over the ultimate distribution of the crop. Louisiana will perhaps be sold out readily by plans which are being formulated there for the disposition of their crop through a sales agent.

Another item which has perhaps held back somewhat the sales of honey, especially in the central sections, is that the honey this year was far below the grade of the fine, white clover produced last year. This has meant that this honey has had to sell at a lower figure comparatively, and, as the crop was less, the returns from the bees has been very much less.

This should not be laid to slowness in honey sales so much as to poor quality of honey produced.

All of this honey, however, should move readily, and we would urge the producers and distributors in the central area to keep their customers supplied with a good grade of white honey purchased from the more fortunate producer this year who has good white honey to offer. In this way consumers can be kept constantly supplied until the new crop arrives.

CANADIAN CROP CONDITIONS

On the whole, the Canadian crop has been equal to that of a year ago, and perhaps a little better. Honey is selling well and indications are that at least 60 per cent of the crop has moved out of the producers' hands. The prices are perhaps one-half to one cent lower than a year ago, with less tendency to "cut each other's throat" by shipping from one province to another.

There seems to be no question as to the possibility of being able to dispose of the 1928 crop before the 1929 season has advanced very far.

All in all, conditions seem very favorable. It is too early to talk of crop prospects except that the entire central area has been treated to constant and heavy rains and the result is that the white clover regions generally are optimistic over the possibility of good honey plant conditions next spring, should there not be too much freezing and thawing during the present winter.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 7c per word, with no discounts. No classified advertisements accepted for less than ten words. Count each initial or number as one word.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied by a certificate of inspection from an authorized inspector.

BEES AND QUEENS

PACKAGES and 350 colonies for sale. Packages with queens introduced. Have never had disease in yards. Certificate of inspection. Best reference. Get our low prices and reasons why you should buy colonies instead of packages.
A. O. Smith, Mt. Vernon, Ind.

BOOKING orders for my thrifty Caucasian three-frame nuclei for May delivery, also queens. Yards inspected; no disease.
Peter Schauffhauser, Havelock, N. C.

NOW booking orders for package bees for spring shipment. Special prices on quantity orders. Write for circular and price list. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

WE have special low prices on orders booked during November for package and nuclei bees, also on queens. Thousands of packages for sale. We have a good offer for several large buyers. Safe delivery, satisfaction and no diseases guaranteed. Please write or wire us for our low prices, also references from customers all over the United States, parts of Canada and even Cuba. M. Voinche, Bunkie, Louisiana.

BRIGHT three-banded Italian queens, package bees, finest quality. Write for 1929 prices. Taylor Apiaries, Luverne, Ala.

WINTER QUEENS—Good tested three-band $1.00 each. I send queens anywhere any month of the year.
D. W. Howell Shellman, Ga.

PACKAGE BEES—Special offer for 1929. Price list free. Hurry. The Crowville Apiaries, J. J. Scott, Prop., Crowville, La.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

QUEENS for the balance of the season, quality equal to the best. Write and get prices. O. P. Hendrix, West Point, Miss.

PACKAGE BEES AND QUEENS—
Jasper Knight, Hayneville, Ala.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, $1.50; twelve, $14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

FOR SALE—Our southern branch in Pearl River County, Mississippi. 300 colonies ten-frame, mostly two-story; equipment for

FOR SALE—200 colonies bees. Equipment all new and bees in excellent condition. Certificate furnished at time of sale. Fuller particulars write to P. O. Box 376, Riverside, California.

1,000 nuclei. Everything nearly new. Splendid location. No disease. Fine chance for package shipper. Price right. Reason, too far from headquarters.
Jensen's Apiaries, Crawford, Miss.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HONEY AND BEESWAX

EXTRA white clover honey at 9¾c and fancy tupelo honey at 12½c. D. Steengrafe, 116 Broad St., New York City.

FOR SALE—White clover extracted honey. Lewis Klaty, Carsonville, Michigan.

CLOVER and buckwheat blend at 7½c pound. One-pound sample 25c. F. W. Summerfield, Grand Rapids, Ohio.

WANTED—Honey in trade for chicks; 10c pound in pails. Ames Hatchery, Deerfield, Wisconsin.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Indiana.

961 CASES Nevada alfalfa sweet clover honey for sale; 390 cases white, 376 cases extra light amber; 195 cases light amber. All in new containers.
P. A. McCart & Son, Fallon, Nev.

HONEY CANDY—Delicious honey nougat candy, milk or bittersweet coating. Five-pound boxes $3.75, postpaid. Five-pound pails choice clover-basswood honey $1.25, postpaid. Valley View Apiaries, Savanna, Ill.

FOR SALE—Buckwheat comb and extracted. Write H. G. Quirin, Bellevue, Ohio.

LIGHT amber extracted honey, clover and buckwheat blend. This honey is of good body and flavor. 8 cents per pound in case lots. E. H. Morris, Swanton, Ohio.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Light amber honey in 60-lb. cans; clover and buckwheat mixed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—White extracted, in five-gallon cans, f. o. b. Nebraska, 9 cents. Light amber, f. o. b. Alabama, 9 cents. Five-case lots, 8 cents a pound both addresses. M. C. Berry & Co., Box 697, Montgomery, Alabama.

WANTED—White clover extracted honey. Send sample and your lowest price. A. L. Haenseroth, 4161 Lincoln Ave., Chicago, Ill.

FOR SALE—Bulk comb and extracted honey; clover and light amber, best quality; Sample 10c.
Fred E. Hyde, New Canton, Ill.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—Clover honey, new crop, 9c per pound in 60's. Two cans to case.
William G. Blake, Port Huron, Mich.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Fancy, extracted, white clover honey in new 60-pound cans. None better on the market. Ten cents for two cans or less; nine and one-half cents for more than two cans, f. o. b. here. Also amber honey. Quality guaranteed. Sample 25c.
E. J. Baxter, Nauvoo, Ill.

HONEY FOR SALE—In 60-lb. tins. White clover at 12c lb.; white sage at 12c lb.; white orange at 14c lb.; extra L. A. sage at 11c lb.; Hoffman & Hauck, Inc.,
Ozone Park, New York.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.
Dadant & Sons, Hamilton, Illinois.

WANTED—A car or less quantity of white honey in 60-lb cans. Mail sample and quote lowest cash price for same.
J. S. Bulkley, Birmingham, Mich.

FANCY white clover extracted honey, any sizes. Prices and samples on request. Kalona Honey Company, Kalona, Iowa.

PARTIES wishing extra fine honey reasonable, any time, write Lee Horning, a Producer, Morrison, Ill.

STURDEVANT, St. Paul, Nebraska. Finest quality clover honey.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

HONEY FOR SALE—Any kind, any quantity.
The John G. Paton Co.,
217 Broadway, New York.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

SUPPLIES

SPECIALS for December: Hoffman brood frames, $36.50 per thousand. Standard hive bodies, $1.06 each with frames; hive stands, 28 cents each. Other bargains. All new, first quality goods. Send for free special price list today. Schmidt Bee Supply Company, 1420-22 Hagar Avenue, St. Paul, Minn.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.
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Unfortunately some of the graders manufactured by the Haubon Company, the first manufacturers of the graders, were found to be inaccurate, and such discrepancies, of course, cannot be tolerated if the grader is to be used to specify the color of honey in business transactions based on the United States grades. In taking over the exclusive manufacture and sale of the grader the Munsell Color Company has signified its willingness to calibrate all the graders now in use. This will be done by matching them with an instrument which has been especially set aside for the purpose, and which contains the original color designations as defined by the United States Department of Agriculture.

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G. P.

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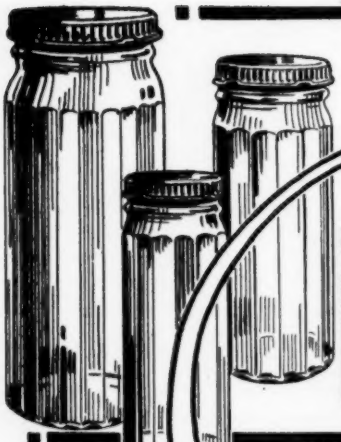

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10-pound pails 50 in carton	$9.50	$46.00	$88.25	$8.00	$39.25	$76.75
			10 boxes	10 boxes	50 boxes	100 boxes
2½-pound cans 24 in wood box			$10.00	$9.50	$45.00	
5-pound pails 12 in wood box			$10.50	$9.00	$44.00	
10-pound pails 6 in wood box			$8.00	$7.00	$32.50	
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G. W. York, Editor, 524 First Ave. So., Seattle, Wash.

American Honey Producers' League Annual Meeting

By J. V. Ormond, Secretary-Treasurer, American Honey Producers' League, State Capitol, Little Rock, Arkansas

The annual meeting of the American Honey Producers' League soon convenes. Probably this convention will prove to be one of the most interesting meetings of its kind held for many years. F. B. Paddock, of Ames, Iowa, has charge of the program for the first day, February 7. I do not know what he will have, but I do know that it will be interesting and beneficial. On the evening of the seventh a public meeting will be held and will be addressed by Dr. H. E. Barnard, of the American Honey Institute. His address will be given to the public, and I am sure that the business that we represent will receive a great boost. Local reporters and a representative of the Associated Press will be present. On the eigth Dr. Barnard will address the League convention and will talk to us about what he is doing to popularize honey throughout the United States and Canada.

I will state at this time that steps are being taken to have men who know the problems regarding export of honey. Recently an exporter returned from Europe and will tell us about his trip and what he learned and observed. I am sure that this will be interesting to all of the big honey-producing sections of the United States and Canada. We expect a good attendance of the inspection departments of the states. These men will discuss among themselves their problems and will no doubt make a report to the general convention of the League. Editors of all bee journals are invited to attend this meeting and discuss such problems as they have and make a report to the League convention.

The honey producers of the United States and Canada who produce honey in quantities that make it necessary to export it outside the state are urged to be present and to discuss their problems and make a report to the general League convention as they may deem advisable.

On the speakers' program we hope to cover important topics now of vital interest to our business. A national organization is vital to all who are concerned regarding the honeybee or their products, and this covers a great field—bee journals, glass manufacturers, tin plate workers, bee supply manufacturers and dealers, honey brokers, honey bottlers, railroads, queen breeders, inspectors, teachers, horticulturists, seed producers—oh! I could go on and on, but what is the use? It is very certain that the readers of these lines are interested in making the American Honey Producers' League the biggest organization of its kind in the world. To join the organization only costs the individual $1.50 to affiliate. The time is drawing near for the Secretary to make his report. Don't you want your name on the list of members?

Arrangements are on foot to have granted to us convention rates by the railroads. The application asked for rates for the whole country. With this reduction it should encourage many more that would not otherwise attend. Later I will give you a more detailed report of the convention and the railroad rate. Here's hoping that we will have the greatest national beekeepers' meeting ever held. Why not? We have more interested today in our business than ever before.

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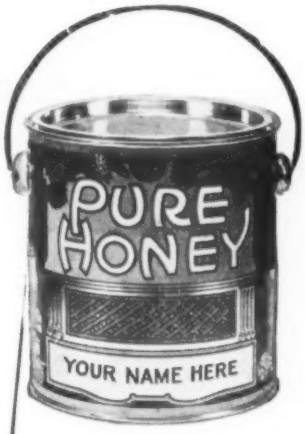

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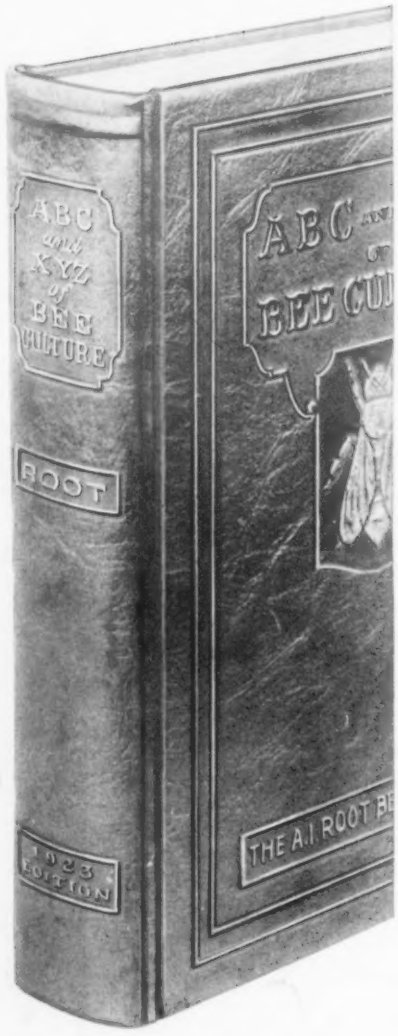

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